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The PC is passe'

With Compaq and Intel both reporting surprise business slowdowns in the past few weeks, the same old question is getting asked again: Is the PC market stagnating?

The short answer is yes. The longer answer is, so what else is new?

The PC market has been stagnant as a platform for innovation for at least three years. What's kept it growing is A) a rapid and unexpected series of price drops that have made PCs more affordable to people who don't want to do much with them, and B) the fact that buying a PC is the most convenient way to connect to America Online or the Internet. But beyond that, PC sales have become less and less a meaningful indicator of the computer industry's health.

If you were focused on the PC market last year, for example, you would have missed the most remarkable PC story of 1997: the success of 3Com's little PalmPilot device. The PalmPilot now has more than a million retail users, and it doesn't have an Intel chip (see our page 1 story for an account of what this means to IS support lines).

This market segment is about to explode.

The real action in the computer industry has shifted decidedly away from PCs and into mobile and networked devices. We may not call them network computers. We may not call them network computers. We may not call them network computers, but they are rapidly acquiring microprocessors and links to the Internet. This market segment is about to explode just as PCs become cheap commodities.

That's why Intel, Motorola and Microsoft are clamoring into the market as fast as they can.

The PC is no longer a barometer of the computer industry's health. The action has moved to other platforms, where it will stay for a long time to come.

Paul Gilin, Editor
Internet: paul_gilin@cw.com



Going global forces changes

► International plans trigger ripple effect across tech functions

By Jaiwaman Vijayan
and Craig Steiman
ORLANDO, Fla.

THINKING GLOBALLY doesn't just change the business side of a company.

Almost every global initiative developed by business managers also requires dramatic action by IS to implement the business plan, senior information systems executives said at an IBM-sponsored manufacturing seminar here last week.

For example, global business strategies may trigger the need for electronic-mail standards, an international help desk, a huge data warehouse, a multinational rollout of enterprise resource planning software and an IS reorganization.

Increasingly, IT organizations have to work with business units on international projects, said David Drew, vice president of IS at J&M in St. Paul, Minn.

GLOBAL REORGANIZATION

There is an ongoing effort at the \$15 billion company to give planners a better view of global demand for each of the company's 50,000 products. That has resulted in an infusion of new tools, data warehouses, advanced modeling technologies and management practices.

For instance, senior IS managers from different groups now report to the chief IS executive and to their business unit chiefs. And huge amounts of historical data from around the world is being "cleaned" for reuse in new planning exercises, Drew said.

Whirlpool Corp. in Benton Harbor, Mich., is working on a similar global supply-chain initiative to reduce working capital costs by more than 30% in the next two years.

The single biggest change for IS will be the implementation of a huge advanced planning system that will allow Whirlpool to plan across a worldwide portfolio of businesses, divisions, plants, product families, seasonal fluctuations and pricing changes, said Gil Urban, a regional IS director at Whirlpool.

A global task force of 18 senior company executives, including two IS chiefs, has identified several areas that will require significant changes. Ur-

- THE IMPACT OF GOING GLOBAL**
- Group Schneider (Paris)
 - Global technology standards are being set, reducing business unit autonomy
 - Infrastructure management duties are being concentrated at several sites
 - Regional support centers are being set up for technologies such as E-mail
 - 3M
 - Data centers and IS resources are being consolidated worldwide
 - Technologies are being standardized
 - New forecasting and planning tools are being implemented

ban said. The list includes inventory and demand management, accounts receivable and planning systems.

"This whole thing basically is a business initiative, but you've got to invest in IT to implement it," Urban said.

An ongoing push to put some global glue on Groupe Schneider's far-flung operations means big changes for its highly autonomous IS staffs, said Steve Little, vice president of information services at the \$7.5 billion company's North American subsidiary in Palatine, Ill.

Group Schneider, a maker of electrical distribution and control products, previously left

most IS decisions up to its business units. But last April, executives decided it was time to "figure out how to be a global company." Little said. Working groups were set up to devise corporate standards in six technology areas, including systems, E-mail and application software.

Little, who is part of the E-mail team, said picking technology was a lot easier than getting everyone to agree on a new IS structure for managing E-mail and groupware throughout the company.

"The biggest issues are cultural and political barriers," he said. "We argued about who wanted to call who [to get technical support]." □

Compaq trips in first quarter

COMPAQ COMPUTER CORP. last week said its first-quarter financial results will fall short of expectations, with break-even earnings. The company cited heavy competition in the North American PC market.

Revenue for the quarter is expected to be close to the \$4.8 billion the company posted in the same period last year, off-

cials at the Houston company said.

Compaq may have overloaded its reseller channels to meet sales objectives and increase overall market share, but those practices are risky, said Aaron Goldberg, executive vice president at Computer Intelligence in La Jolla, Calif.

— April Jacobs

THE FIFTH WAVE

BY RICH TENNANT



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Citibank invests big in reliability

• AT&T to merge 11 networks into one

By Matt Hamblen

Corp. in Framingham, Mass.

CITIBANK LAST WEEK SIGNED a \$750 million deal to consolidate and revamp its global networks in a quest to build reliable and secure electronic-commerce and home banking applications in 98 countries.

The nation's second-largest bank hired AT&T Corp. to consolidate its 11 networks into one frame-relay wide-area network. AT&T will manage the WAN under a five-year pact that will save New York-based Citibank an estimated \$450 million in operating costs, bank officials said. That number is about 4% of Citibank's 1997 operating expenses that weren't related to employees or restructuring.

But the cost savings are secondary to Citibank's desire to improve network performance, reliability and security.

"Our return on investment is certainly the \$500 million in operating cost savings. But on a qualitative basis, what this new network means to us is the ability to deliver new products" to businesses and consumers, said Stan Welland, Citibank's director of global technology infrastructure.

"I'm sure the service-level agreements for latency in the network and speed are very, very tight. If AT&T can show this weeks quite well, you can bet that a lot financial service firms will look at network outsourcing very closely."

Citibank officials were vague about their product plans using the new network but said the upgrade would make

"What this new network means to us is the ability to deliver new products" to businesses and consumers.

— Stan Welland, Citibank

find transfers to its branches worldwide more reliable and secure. Plus, increased network bandwidth will let the bank open new electronic-commerce and home banking markets in nations where it has none, Welland said.

The largest of Citibank's 11 networks is a slow and costly bandwidth-sapping X.25 network, officials said. Proposed applications are TCP/IP-based and require higher speeds.

Citibank is second to The Chase Manhattan Bank Corp. in assets holding.

The network will be based on frame relay and TCP/IP, using routers from Cisco Systems, Inc. in San Jose, Calif. AT&T Solutions, an outsourcing division in Basking Ridge, N.J., will manage the network from Durham, N.C. London and Singapore and become the bank's chief negotiator with hundreds of carriers in the 98 countries.

Citibank will lay off 450 information systems workers worldwide as a result of the deal, but AT&T said some may find work in its outsourcing unit, which expects to add "thousands" of workers in coming years, even as the larger AT&T cuts staff. □



Running school networks helps Kentucky students such as Charles Roes get certified before they even graduate. *Corporate Strategies*, page 39

Ethical issues are rarely a top priority, but they're never far below the surface in IS. Linda Baimo is one of two CIOs who tell how they would handle four hypothetical ethical scenarios. *Managing*, page 64

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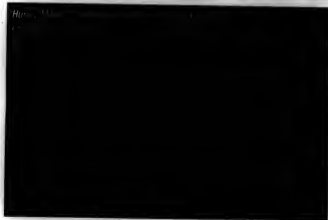
In 1997, Citibank posted \$6.48 billion in operating expenses that weren't related to employees or restructuring.

The Citibank announcement is part of a growing outsourcing trend in financial services, analysts said. Citibank outsourced management of its LAN and desktop computers in 1996, for example. Additionally, the bank, which has \$500 billion in assets, won't rely on the Internet as a backbone for its global network, preferring to deal with telecommunications carriers.

"You can be sure Citibank was looking for the reliability guarantees" in the deal with AT&T, said Paul Johnston, an analyst at International Data

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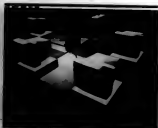
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More put credit cards online

► Comfort zone for Web buying expands

By Sharon Machlis

CONSUMERS may still be uneasy about using credit cards on the Internet, but fear is holding back a lot fewer surfers than it used to.

World Wide Web merchants said they have noticed a major shift in behavior over the past year, including 1997 holiday sales that some estimates peg at \$1 billion, about the same as all

consumer Internet purchases the year before.

"We have seen a dramatic increase in the number of people who are comfortable putting their cards online," said Cyndy Atkinson, director of marketing at Virtual Vineyards (www.virtualvineyards.com) in Palo Alto, Calif.

At ESPN SportsZone (<http://espn.com>), almost 85% of online sales are handled on the Internet rather than via a toll-free telephone number, up from about 60% a year ago, according

to Brian Ratzliff, manager of business development at ESPN Internet Ventures in New York. The Value America Web store, meanwhile, got almost 50% of its orders by phone a year ago, now that amount is down to "far less than 5%," said CEO Craig Winn.

At Garden Escape, Inc. (www.garden.com), only one in 10 orders now comes in by phone or fax, compared with 15% last year. "We haven't seen a dramatic change but every

Credit cards, page 96

NETWORK MANAGEMENT

You've got the tools, now who does the job?

By Patrick Dryden

AFTER SPENDING MILLIONS on networks, distributed systems and client/server migrations, companies are turning to monitoring tools that can provide a high-level view of overall performance.

Now the practical and political question is: Who in the company should get that information and take responsibility for fixing problems? So far, there is no standard answer.

"IS organizations must decide where responsibility lies for solving performance problems that affect the business," said Ray Paquet, a management analyst at Gartner Group, Inc. in Stamford, Conn. Otherwise, "these immature tools will sit on the shelf, and the finger-pointing exercises will continue between the technology sides," he said.

A COUPLE OPTIONS

One option is to create a new position — application manager — to oversee everything that affects a critical business process. Or the new monitoring duties could fall to the network operations center, the help desk or other established watchdogs in the organization.

The decision about who gets the job has been "very much an afterthought," said Steven Foote, a research vice president at Hurwitz Group, Inc. in Framingham, Mass.

Application managers are a sign of the "new diplomacy" between those groups, Foote said. Whether located in information systems or a business unit, the application managers own the problem when critical applications crash or slow down.

"They fully appreciate the value of the application to the business, so they can make the triage decisions about what problems require attention first," Foote said. Then the application managers get after the systems administrators, network managers, database administrators and other specialists.

A "quality assurance" position is evolving at AEM AMRO Bank in Chicago because IS groups have decided that they should delegate performance re-

sponsibility, said John Pittas, a systems officer at Citicorp.

"It started when we rolled out some applications that overburdened the network, and we struggled to fix the problems," he said. During the past year, Pittas said, he has taken on the job because he had the capacity planning tools and expertise.

THE BEST CANDIDATE

The "war rooms" in network operation centers for large organizations are logical places to add performance monitors, Foote said. "They are already geared to prioritize problems and point to specialists, so they can start checking on servers and applications, too," he said.

The help desk that supports the trading floor at Bank of America Corp. eventually will take over the monitoring tools, said Dennis Mitchell, a vice

"IS organizations must decide where responsibility lies for solving performance problems that affect the business."

— Ray Paquet, Gartner Group

president responsible for the trading group's network and systems in San Francisco.

Likely candidates are help desk staff who "understand how the pieces fit together" and are "adept at monitoring and starting the troubleshooting process," he said.

Inuit, Inc. tries to make performance information available to all, said Rick Parkinson, director of planning and delivery at the software developer in Mountain View, Calif.

But that can be dangerous. "Utilization data without an explanation wrapped around it can be misleading," causing unnecessary alarm or a false sense of security, Parkinson said. □

SAP eyes niche markets

By Randy Weston

SOFTWARE GIANT SAP AG is taking on the Davids of niche market software vendors — a move many customers see as a mixed blessing.

The maker of the popular R/3 business process automation software last week said it is preparing stand-alone applications that will compete directly with specialty or niche products such as data warehousing software.

SAP's software offerings will include sales force automation applications, advanced planning and optimization systems and business-to-business electronic commerce applications.

Plans are also in the works for applications for the management of product data, warehouses and transportation, company officials said.

ATTRACTIVE OFFER

Most of these products are still being developed and won't be released until late this year (see chart). But for users who don't want to deal with the costly and difficult process of trying to integrate third-party software with R/3, SAP's strategy has appeal.

"Customers want fewer software suppliers. This is a natural extension to ERP systems," said Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston.

Users today are making enterprise resource planning (ERP) systems such as SAP's R/3 the backbone of their corporate computing environments.

But for every dollar spent on software licenses, companies typically spend \$5 on maintaining the application integration, Richardson said. SAP is still working out pricing, but the

SAP invades third-party market

Application	Function	Delivery date
Supply-chain optimization, planning and execution	Plans plant use and forecasts demand	Year's end
Business Information Warehouse	Data warehousing	July
Sales force automation	Manages sales clients (includes pricing and configuration engines)	Year's end

software licensing fee is expected to be about the same as the price of the niche players' products — roughly \$250,000 for an optimization system.

Most of the ERP vendors are going in the same direction. Oracle Corp. and The Baan Co. have made similar announcements in recent months, and a series of consolidations and acquisitions of third-party players is widely expected.

Niche players are starting to feel the pinch. Robert Humphries, vice president of marketing at La Technochemy, Inc. in Irving, Texas, said SAP is stalling the market for advanced planning software as customers wait to see what SAP will offer.

"We are not big enough to support all the niche vendors," said Jim Maguire, director of information systems at chemical maker PQ Corp. in Valley Forge, Pa., which has been running R/3 since July 1996. "We are a \$500 million company and have a 25-person IS shop. Having just one vendor means I have one base for support. That's very important to us."

Maguire said if SAP can deliver on its promises and the price is right, his company would consider it for those peripheral functions.

Analysts said the market is so huge for many of these products that there will continue to be plenty of room for the major ERP vendors and third-party players. The supply-chain planning and scheduling market, for example, is expected to grow to \$1 billion by 2000 from its 1996 level of \$350 million.

Wayne Corston, director of information technology at plastics maker Syntegistics Industries Ltd., said in order for his company to bite SAP's bait, the vendor must deliver products that are comparable to the niche products now on the market. But he said SAP's entry into third-party markets was indeed putting a hold on current searches for third-party products.

"We are very interested in one-stop shopping for a totally integrated package," he said, adding that he is most interested in the optimization tools and the data warehouse. □

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Microsoft's Java detour irks users

► Visual J++ update wreaks cross-platform havoc

By Sharon Gaudin

USERS WERE LARGELY exasperated last week by the latest attack on the Java war between Microsoft Corp. and Sun Microsystems, Inc.

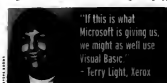
"This is not good," sighed Terry Light, an engineering manager at Xerox Corp. in Rochester, N.Y.

Microsoft released the beta of Visual J++ Version 6.0, an application development tool that strays away from Java's cross-platform capabilities.

The industry's most popular Java tool, Visual J++ is now optimized to build robust Java applications for Windows, tying developers more tightly to Microsoft's platform.

"If this is what Microsoft is giving us, we might as well use Visual Basic," Light said. "It's not making cross-platform [development] easy, and it defeats the purpose of what we're trying to do."

Frank Wood, a software engi-



"If this is what Microsoft is giving us, we might as well use Visual Basic." — Terry Light, Xerox

neer on The Spock Team at NASA's Missions Operations Directorate in Houston, said he will probably back away from using Microsoft's tool if it isn't easily cross-platform.

"It's a minefield," Wood said. "We're concerned with cross-platform capabilities. If we can't do that with [Visual] J++, we're going to have to use another tool."

In a recent study by International Data Corp. (IDC) in Framingham, Mass., 70% of 483 large U.S. companies developing applications with Java said they chose Java for its platform independence. In another IDC survey of 396 U.S. companies that use Java, 35% were using Visual J++, while 17% were using Symantec Corp.'s Visual Cafe for Java.

"Our focus is on Windows," said Bill Dunlap, Microsoft's Visual J++ technical product manager. "Developers want to build robust and powerful applications for Windows, and that's what we're giving them."

This latest version of Visual J++ adds Windows Foundation Classes (WFC), an object-oriented framework of class libraries designed for Windows. Developers using WFC won't be able to build cross-platform applications.

Dunlap said Visual J++ still can build cross-platform applications, although it won't be Java code moving from one platform to another.

He said the tool has been rebuilt so the Windows-specific Java application can generate dynamic Hypertext Markup Language (HTML) code, which can go out over a World Wide Web browser.

But dynamic HTML isn't an industry standard, and Netscape Communications Corp.'s Navigator browser (versions 2.0 and 3.0) doesn't support it. A Netscape spokesman said he isn't sure if Navigator 4.0 will support the dynamic HTML writ-

ten in Microsoft's tool.

John Kannegaard, vice president of software products at Sun's JavaSoft unit, said the company will be examining Visual J++ to see if it breaks Sun's license with Microsoft. "I have no reason to believe what they've done is [illegal]," he said. "I do have reason to believe that what they've done is stupid."

BOYCOTT POTENTIAL

Microsoft's move led Rick Ross, president of the 13,000-member Java Lobby, to call last week for legal action, and he hunted at a groupwide boycott. The Java Lobby is an independent group of developers and programmers from Fortune 500 companies.

"This is all part of Microsoft's calculated effort to neutralize Java," said Ross. He said the group is declaring war on Microsoft after months of holding out hope on its Java intentions. "If they can't own it, they want to destroy it," he said.

Other users noted that HTML can't replace a full-blown development language. □

Businesses welcome Cisco plan to better control net traffic flow

► Software to help firms prioritize data in stock trades, key uses

By Bob Wallace

ALTHOUGH THE phrase "policy-based networking" may not mean much to the average user, technology managers at financial institutions are clamoring for it. They say it will change the way they do business.

Under a plan hatched by Cisco Systems, Inc. last week, Cisco's users for the first time will be able to create policies or special instructions to the network. A policy could specify, for example, that only the engineering department use the network after hours. Or it could give SAP applications top priority for bandwidth.

"Instead of working on a dozen routers to make one change, we'll be able to use policy net-

working to make that change and propagate it throughout the network," said Cesar Vallejos, manager of global networks at The Pinnacle Alliance, a New York-based outsourcing unit that services J. P. Morgan & Co. "There's a screaming need for policy networking on Wall Street."

USER DEMAND

Financial firms are especially good candidates for policy networking because of the value associated with the data traffic in stock trades that flow across their networks.

"We'd like to be able to send a trade worth \$100 million ahead of one worth \$1 million, but we don't have the tools to do that today," Vallejos said.

With its Cisco Assurance Policy Networking, the San Jose, Calif., vendor will begin providing the tools needed to create and distribute policies in the second half of the year. Tools for security policies will follow next year.

The bottom line behind the users is centralized management, where managers only set policies once for the network. [That's] a big change from manually setting and resetting

against revenue from a \$500 million contract Enron won in California, the return on investment is actually 50,000%, or a five-hundred-fold return.

In the article "Agency combines databases to revamp vital forecasts" in the Jan. 19 issue, the job cuts mentioned are in the Idaho National Engineering and Environmental Laboratory, which is under the umbrella of the Department of Energy.

Corrections

A chart in the March 9 Data Warehouse section contained incorrect pricing information for DataSwitch Corp.'s MemorySense reporting software. The product costs \$50,000 for 10 concurrent users.

Due to a typographical error, the March 2 story "Power Payback" incorrectly stated that Enron Corp. would receive a 50% payback on its \$1 million technology investment. When calculated

CISCO'S POLICY NETWORKING PLAN

Component	Function
Graphical user interface	Lets users automate creation of policies
Switch, router software add-ons	Lets device recognize applications
DNS/DHCP Manager program*	Lets managers tie names by IP addresses
Policy servers	Repository for policies in the network
Enhanced policy servers	Can handle policies for security

* Enhanced version

Note: All but the enhanced policy servers (1999) will ship in the second half of this year.

Source: Cisco Systems, Inc., San Jose, Calif.

parameters for each network device at each site throughout an organization, as is done today," said John Moroney, a principal at Renaissance Worldwide, Inc., a consulting firm in Newton, Mass.

PERCEIVED BENEFITS

Joel McKnight also sees benefits to policy-based networking.

"Currently, many network management organizations get tied up dealing with individual devices, be they routers or switches," he said McKnight, trading floor project manager at Williams Energy Service Inc. in Tulsa, Okla. "Tools that would allow us to step one level higher and manage the aggregate infrastructure as one entity

would be very attractive."

Starting in the second half of the year, Cisco will deliver software add-ons, a graphical user interface, policy servers and an enhanced management program, which is needed to take full advantage of Cisco Assurance Policy Networking.

The vendor wouldn't divulge pricing for the components.

Cisco hopes to steal thunder from rival 3Com Corp. in Santa Clara, Calif., which announced its TranscendWare policy-based networking blueprint earlier this year. The Cisco scheme is broader in scope, according to Moroney, because it includes IP address management and security, whereas 3Com's focuses on traffic prioritization. □

Scrutiny of software licenses pays off

By April Jacobs

GOOD SOFTWARE LICENSES management can save a company big bucks, such as by eliminating payments for unused software packages. Sony Pictures Entertainment Corp., for example, saved \$800,000 last year from a software audit.

But surprisingly, most companies don't bother to scrutinize their licenses for cost-cutting opportunities, says Priscilla Tate, director of the Technology Managers Forum in New York.

Tate and other observers said the reasons include poor record keeping, employee turnover and a lack of expertise and resources. It doesn't help that software vendors have different licensing schemes that are hard to figure out, Tate added.

NOT JUST IN THE MOVIES

But the payoff from a tightly run software licensing program was clear at Sony Pictures, a movie studio in Culver City, Calif. The program was run by Sphinx Group, Inc., an Arroyo Hills, Calif.-based consultancy that specializes in auditing software licenses.

Most of Sony's savings came from cutting excess licenses for products such as Microsoft Corp.'s Office suite and getting credits for unused portions of its Novell, Inc. NetWare licenses, said Suma Fong-Henry, a senior research consultant at Sphinx Group.

Monitoring those details can save companies 10% to 15% off their total bill, according to Sphinx Group consultants.

Some ways to reduce software licensing costs:

- Keep an accurate tally of users, and make sure they need what is on their desktops
- Examine licensing agreements to make sure that what you pay for is needed and used

"Unless a company has someone guarding the castle, their records probably aren't organized very well, and they could be throwing away a lot of money on licensing they don't need," Fong-Henry said. "The companies most at risk for overpayment are those with 1,000 or more desktops. That's because they have the most to leverage."

Wes Scruggs, vice president of information technology at Salick Health Care, Inc. in Los Angeles, is carefully reviewing licenses. He said he hopes the review will save a significant amount of money for the company, which runs cancer centers in several states.

For example, Scruggs has eliminated all automatic renewals for software maintenance contracts so the deals can

be reviewed annually.

At his previous employer, Health Net Corp. in Woodland Hills, Calif., Scruggs said he achieved six-figure savings by carefully managing licenses.

"We found we were in some cases

paying for licenses we didn't need or that we were paying for maintenance on equipment where the failure rate was so low that it didn't need it," he said.

Companies lacking expertise can hire third-party auditors. But large compa-

mes, such as NationsBank Corp. in Charlotte, N.C., often have a dedicated contract-management department devoted to making sure software licenses comply with company requirements.

The department also takes advantage of volume discounts and licensing options that allow different departments to share seldom-used applications, said Tim Everhart, senior vice president at NationsBank.

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- Split BCV from Primary Volume A
- Relabel OR line BCV as Volume B
- Vary Relabeled Volume B OFFLINE
- Backup Volume B
- During Restore User Must B Aware That Backup of Volume B is Really Volume A

WITH FDR INSTANTBACKUP

- Split BCV from Primary Volume A
- Split BCV OFFLINE
- Instantly DRP
- Backup Volume A
- Restore Restore to original location

Relabeling volumes is an administrative nightmare. It may be difficult to identify the backup of relabeled BCV Volume B as a backup of Volume A. While Volume B is online, having a VVDS with a name that does not match the volume serial may cause problems with SMS and VSAM, and reporting and capacity analysis tools will report that data sets on the BCV volumes are uncataloged.

NON-DISRUPTIVE FULL-VOLUME BACKUP

Example of how to perform a non-disruptive full-volume backup:

```
//FDR EXEC PGM=FDR,REGION=0H
//FISCT DD DSN=FDR.USE.UNIT01FB,
// UNIT=3390,VOL=SER=V58001,DISP=OLD
DUMP TYPE=FDR
```

← Tells FDR to backup offline BCV rather than the primary volume.

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Too many IT duties? Hire a second CIO

By Thomas Hoffman

IT'S A COMMON problem for CIOs: They dream of creating innovative business applications to help the company gain competitive advantage but end up stuck spending most of their time putting out

fires and grappling with legacy system maintenance.

Companies such as Fingerhut Corp. and The Chase Manhattan Bank Corp. say they have found a solution for chief information officers who are being pulled in too many directions — appoint

a second CIO.

Chase split the CIO duties after former CIO Denis O'Leary got bumped upstairs and recognized that it made sense to have separate technology officers for its respective retail and wholesale banking operations.

"Denis worked full-time on governance and vendor procurement and wasn't able to spend much time on business architecture or technology in the business areas," said Rick Mangogna, 38, the recently named CIO of Chase's wholesale banking group. "We needed to change that."

As for Fingerhut, management decided that one executive simply couldn't shoulder the burden of IT strategy and infrastructure as the company seeks to explore new growth opportunities. So earlier this month, Fingerhut split the top technologist position.

The \$1.8 billion Minneapolis, Minn.-based database marketing company named five-year veteran Tom Bozinski to oversee the company's IT infrastructure. Meanwhile, American Express Financial Advisors' Alan F. Bignall jumped ship to direct Fingerhut's technology-based strategic initiatives and growth opportunities.

The split responsibilities at Fingerhut and Chase aren't a new phenomenon. For years, companies such as New York-based Merrill Lynch & Co., Detroit-based General Motors Corp. and GE Capital Corp. in Stamford, Conn., have had CIOs set and align business goals and strategies.

Chief technology officers, on the other hand, typically handled day-to-day operations, said Vaughn Merilyn, a vice president at The Concours Group, a Kingwood, Texas-based consultancy.

The time and resource constraints that weigh on CIOs are just what led Fingerhut to split the duties, said Bozinski, who had been the acting CIO since Glenn Hibern left in 1993 to become CIO at HEB Grocery Co. in San Antonio.

Bignall, 46, will try to help Fingerhut leverage new business opportunities, such as more effective use of the terabytes of data Fingerhut has on 31 million households. He also will try to expand the company's base of catalog customers beyond existing accounts such as Fashion Bug and Firestone.

Fingerhut CIO Alan F. Bignall will try to expand the firm's catalog customers

Bignall said. Fingerhut also is in the early stages of bolstering Fingerhut Online (www.fingerhut.com) with more products and services for sale.

The company is considered a technology leader because of its innovative use of database marketing and data mining capabilities, analysts said. □



Fingerhut CIO Tom Bozinski carried the IT burden alone since 1995

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FRANKLY SPEAKING

IT's ups and downs

FRANK HAYES

UP AND DOWN. That's how things go in the information systems business. The cost of finding the skilled IS people you need is going up, and so is the bill for your year 2000 fix. On their way down are the list price of a PC and the amount of unused capacity on your network — thanks to push technology, streaming video and other Internet bandwidth-busters.

But these are just momentary blips. The real big-league ups and downs are the ones defining how you'll be doing your job well into the next century.

So, what's up? And what's going down? **Hardware costs are low, software costs are high.** Once, hardware was so expensive that to save space, we left out two digits of the year and used cryptic codes for everything else. Now memory and MIPS are cheap — it's programs and data that are worth their weight in platinum.



You wouldn't know it from the way too many systems are still built, though. We still waste time making tricky tweaks to boost application performance. We ought to be spending that time testing to make sure applications are reliable and easier to adjust when business needs change.

Focus on system flexibility, business understanding and your users.

Forget the tracks. Get your performance from cheap hardware and your business value from clean, maintainable code.

Replacement cycles are shrinking, while support costs are exploding. Think there's no connection? Questions about how to use applications are by far the biggest drain on help desk re-

sources, according to a survey conducted last year by Forrester Research. These days, software changes so fast that users simply never get the chance to know what they're doing.

And inside IS, managing the constant thrash of new applications, new back-end systems and new networks — all subtly incompatible with earlier versions — eats up resources that ought to be used solving business problems.

The drag of legacy systems is increasing, and their value is decreasing. It's not just year 2000 problems. Legacy systems were built to support business practices we may have abandoned years ago. That means today, legacy systems actually work against the way we should be doing business. That's not just an inconvenience — it's an obstruction.

Packaged software may mean changing the software less and changing the business more. Packaged systems from SAP and PeopleSoft or other vendors sound like perfect replacements for aging legacies.

But do you spend a huge chunk of your IS budget modifying the software to match the way your users work now? Or do you leave the software alone and change the way your business runs?

That's not just a technical choice. It's a business decision with consequences that could last for years. But too few IS people see it that way or understand

that they need to get top management involved to sign off on those major business/technical decisions.

Business dependence on IT is on the rise, but users' ability to specify what they need is dropping dramatically. That's because business needs are changing almost constantly. By the time an application is specified, much less completed, it's already out of date.

Until you can tailor applications for users on the fly, you'll be behind the curve — and keeping the business there, too.

The visibility of IT is way up, but respect for IS people is falling. Some of that is politics as the Web and electronic commerce make IT sexy. But too much is based on a legitimate beef: Your non-IS peers die you because their eyes are solidly on the business and too often yours aren't.

See the pattern? In the past, IS focused on tightly built systems, technology expertise and a solid knowledge of the computing infrastructure.

In the future, you will need to focus on system flexibility, business understanding and a solid knowledge of your users.

And that future had better start right now, while IS is up. Otherwise, it could be a long way down. ☐

Hayes is Computerworld's staff columnist. His Internet address is frank.hayes@cw.com.

SHORTS

Qwest, LCI in \$4B merger

Qwest Communications International, Inc. in Denver and LCI International, Inc. in McLean, Va., last week announced a \$4.4 billion merger that will create the fourth-largest long-distance telephone company in the U.S. The combined companies have \$4.5 billion in revenue and serve more than 2 million business and residential customers. Both are aggressively building fiber-optic networks.

Fed Y2K bill: \$4.7B and rising

The federal government's bill to fix year 2000 problems has risen to at least \$600 million, bringing the current total estimate to \$4.7 billion for 24 major agencies. The revised estimate by the U.S. Office of Management and Budget was a steep increase from the \$5.9 billion estimate issued just three months ago. But the government's new year 2000 czar, John Koslowski, said "costs are under control." He said the eventual price tag will exceed \$4.7 billion — but not by much.

HP sets E-commerce road map

Hewlett-Packard Co. last week rolled out its so-called Electronic Strategy under which it will develop products and services targeted at various segments of the electronic-commerce market. Products and services will fall into four categories: E-Business, E-Commerce, E-Consumer and Extended Enterprise. E-Business encompasses enterprise software integration services for corporations that are building electronic-commerce sites. E-Commerce focuses on aspects such as secure electronic payments. Extended Enterprise covers the

software and hardware needed by companies and Internet service providers to run networks that use Internet protocols.

Cisco to buy DSL maker

Cisco Systems, Inc. last week announced that it will acquire Digital Subscriber Line (DSL) product maker NetSpeed, Inc. in Austin, Texas, for \$26 million in stock. The move bolsters San Jose, Calif.-based Cisco's presence in the fast-emerging DSL industry. NetSpeed makes modems for user sites and equipment for telephone company switching centers. DSL technology offers high-speed transmission over existing telephone lines.

Calif. bill would fine spammers

Two California assemblymen last week introduced an antispam bill that would allow Internet service providers to sue spammers up to \$15,000 per day. The bill would give Internet domain name owners the power to enforce policies for unsolicited messages sent over their networks without their permission. The Assembly bill calls for providers to publish their policy on accepting unsolicited electronic mail either on their World Wide Web page or in response to a written request (see editorial, page 34).

Analysis tools on tap

Data analysis announcements will fly fast and furious at the DCI Data Warehouses conference this week in Orlando, Fla. Alphadix Corp., a Mountain View, Calif., start-up, will announce software for build-

ing Java-based analysis applications, and San Mateo, Calif.-based Infospace, Inc. is beta-testing an upgrade of its Java-based SCOAP analysis server. Meanwhile, Platinum Technology, Inc. in Oakbrook Terrace, Ill., plans to introduce data transformation and movement software for building data warehouses.

Lotus sued over search engine

Verity, Inc. in Sunnyvale, Calif., last week filed a lawsuit against IBM's Lotus Development Corp. for copyright infringement of Verity's search software and is terminating its licensing agreement with Lotus. Verity said Cambridge, Mass.-based Lotus is going beyond the scope of its 1995 agreement with Verity by adding new search features to Notes 5.0, due in the second half of the year.

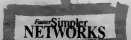
SHORT TAKES Despite a published report to the contrary, a U.S. Department of Justice official last week insisted that no decision has been made about whether or not to take further action against Microsoft Corp. A Wall Street Journal report had speculated that the department might not move to block the release of Microsoft's Windows 98, which features an integrated Internet Explorer. ... Sanford Wallace, dubbed the Spam King by his detractors, and his company Cyber Promotions, Inc. in Dresher, Pa., have agreed to an injunction prohibiting them from sending unsolicited bulk electronic mail to users of a free e-mail service from Bigfoot Partners LP in New York. ... Microsoft last week said it will give away its Outlook 98 e-mail and collaboration client, which costs \$100, for the first 90 days when the software ships at the end of this month.

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How the intranet was won: US West pioneers push change

► Business opportunities, cost savings drive growth of Global Village

By Carol Silva
Denver

THE SHOOTING BUDDY and companywide skepticism didn't matter to the four hardy souls who launched US West Communications, Inc.'s intranet four years ago.

Convinced that real business benefits could come from Internet technologies, they scraped together \$400,000 for the Global Village project and set out to change the company's culture.

"I recognized what the value could be to the business. I just didn't have a lot of money to

everything from internal job postings to programs that cater to external business partners and customers.

Company officials estimate a return on investment of more than 1,000%, with millions saved on everything from publishing costs to employee hours worked (see chart below).

STRONG TECH TIES

US West's information technology staff got involved in the spring of 1995, when David Laube took over as chief information officer. Supportive of the new technology, Laube supplied

company and those "clients" provide partial funding for the applications they will deliver. Laube said. But the applications often don't require more than three months to develop and don't cost more than \$100,000.

"It is changing the way we develop our software," he said. "This is worth just a fortune."

But long before the potential savings of the Global Village intranet were obvious, a lot of work went into changing employee attitudes about unknown technologies.

"I had to convince people there was a point to chaotic growth," said Sherman Woo, director of Global Village Information Tools, who led the original four members of the intranet team. He encouraged grassroots acceptance of Internet technologies, wherever he could. He advertised the company's uniform resource locator; staged theater presentations three times a day for a year; and urged people to put up Web sites.

One of the most popular intranet sites is the Rumor Mill, which encourages employees to submit questions, anonymously if they wish.

But the real "killer application" that boosted the intranet's acceptance was Facility Check. The application gives US West employees accurate estimates of when phone service will be installed—a welcome and valuable piece of information to the customers when they call. □

Challenge of a Lifetime

Suzanne Mullison didn't think she'd be a secretary for the rest of her life, but she never imagined she'd be running a major Web site, either.

Four years ago, one of the chief instigators of US West Communications' Global Village intranet project, Sherman Woo, challenged Mullison to create a World Wide Web page filled with all the useful tidbits of information an executive secretary knows.

Her life hasn't been the same since.

Mullison, 45, has gone on to become the webmaster of US West Communications' Global Village home page.

"Now she can't be stopped," Woo said, noting that Mullison had been "totally underutilized."



Using a training manual, Mullison taught herself HyperText Markup Language and launched the Virtual Secretary Web site. She later changed the site's name to Info Center when some users complained about the word "secretary."

The title wasn't offensive to Mullison.

At age 17, she joined US West as a telephone operator, skipping her high school graduation ceremony because she had to get to work. She moved on to clerical support in the finance organization, gained increasing levels of responsibility and finally became the executive secretary to Peggy Tunney, executive director of revenue and treasury operations at the time.

A few years later, Tunney funded the project that became the Global Village.

"Here I am, the editor, publisher and webmaster," Mullison laughed. "And before, I could hardly find the switch to turn the computer on or off."

Mullison didn't stop at the Web. She is working toward her bachelor's degree in business at Regis University in Denver.

"She's transformed as a person," Tunney said. "She's always been delightful, but she was kind of private and reserved. Now she's down there inventing stuff like mad. It's just wonderful to see. She has certainly served as an example for a lot of the regular folks."

—Carol Silva

give," said Peggy Tunney, who was a vice president of financial operations when she funded the four-person team.

The dreams were large but the initial plan was modest: Post some company information, foster a community of interest and convince people that US West's network could essentially become an internal Internet.

It worked beyond everyone's wildest imagination.

Today, US West's Global Village intranet receives 6.5 million hits per month, and more than 28,000 employees visit the site. More than 300,000 World Wide Web pages are stored on the company's servers.

"Now people talk about the Global Village as an integral part of running our business," said Tunney, now a vice president of retail marketing. "We built it, and they came."

The intranet is far more than a companywide communication tool. Every department has its own page, and there are more than 60 applications used for

the equipment, management and "a very strong IT tether."

Like most large companies, US West tended to make major changes cautiously. Early concerns from the IT side centered on its wariness of untested software that didn't adhere to US West's standards.

Later into the project, the intranet's potential to pose security hazards or clog the company network was a concern.

But the business opportunities outweighed those worries, Laube said.

Software products from Netscape Communications Corp. are now the company standard. The Global Village Labs employ 55 programmers, but the intranet's \$5 million budget still represents only a small fraction of the \$500 million budget allotted to the 5,000-person IT staff. The modest budget is by design; managers want intranet applications to be demand-driven.

Intranet programmers find ways to generate business value for the various divisions of the

KEY US WEST INTRANET APPLICATIONS

APPLICATION	DESCRIPTION	COST/ESTIMATED SAVINGS
Facility Check	Lets service representatives tell customers when they can expect to receive phone service.	Less than \$50,000/\$10M*
Password Reset	Lets employees who have lost their passwords reset them for more than 25 business systems.	\$53,000/\$400,000
Meet Me Bridge	Appllet used to schedule audio conference calls; accessible to employees on intranet.	\$30,000/Not available
Centrex 21 Assistant	Appllet that helps customer service representatives input information for Centrex 21 business orders. Centrex 21 is a US West service for business customers.	\$50,000/\$M
E-mail ordering system	Captures electronic order information and provides ongoing acknowledgment and status information between US West and competitor McLeod USA.	\$10,000/\$500,000
Metric Dashboard	Collects metric information about billing systems and presents it in online trend reports.	\$50,000/Not available

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Too late for Y2K silver bullet

By Julia King
and Thomas Hoffman

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Outsourcing loses its stigma

CONTINUED FROM PAGE 1

gest change on the information technology outsourcing front is its overwhelming acceptance by once- wary IT executives who used to envision their careers in a nosedive at the mere mention of companies such as Computer Sciences Corp. or Electronic Data Systems Corp. Many were reluctant even within the past few years to farm out a sliver of

(see related story below).

"I get paid to provide and manage information technology resources. Some are internal, and some are external," said Bob Rubin, CIO at Eli Atochem in Philadelphia, which has outsourced desktop support and legacy application maintenance to three vendors. "The last time I looked, I didn't get paid for the

ing payroll? What are you, stupid? Today, companies are more open to outsourcing."

Users also are calling the shots more than ever before, fashioning one-of-a-kind outsourcing deals that suit their business needs rather than signing boilerplate contracts.

A NEW GAME

"It doesn't matter what the vendors are doing anymore because the companies who purchase IT services are finally dictating the terms," said Susan Scrupski, who writes an outsourcing newsletter and is a partner at Arc Consulting in Tinton Falls, N.J. "The balance has definitely changed."

For example, Oakland Community College, out of Detroit recently crafted a five-year deal under which SCT Corp., a Malvern, Pa., contractor that specializes in education, assumes all planning and project management responsibilities for the college's new academic computing environment. But the college has retained ownership of its hardware and software, and the right to implement and run the new environment. The reason: "Their cost structure is higher than ours," said John Valentine, the college's executive information systems director.

Additionally, the college built in to the agreement a six-month "phase-back" period during which SCT will transfer planning and project management

Sample multivendor outsourcing deals
Companies are mixing and matching multiple vendors to provide different services, such as desktop management and application development

User: Du Pont Co.

Vendors: Computer Sciences Corp.; infrastructure and select applications; Inland SAP R/3; Andersen Consulting; application development and maintenance
Contract value: \$4 billion

User: BellSouth Telecommunications

Vendors: Andersen Consulting; application development and maintenance; EDS; all IT operations
Contract value: Not available

User: J. P. Morgan & Co.

Vendors: CSC; prime contractor and project management, all data centers plus LAN/desktop, Europe; Andersen Consulting; subcontractor in application development and maintenance; Bell Atlantic Network Integration; subcontractor in LAN/desktop, U.S.; AT&T Solutions; subcontractor in WAN voice, data and video
Contract value: \$2 billion

User: Citibank

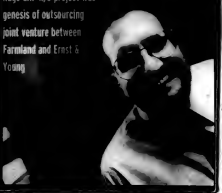
Vendors: Digital Equipment Corp.; desktop/LANs; EDS; desktop/LANs; AT&T Solutions; global network
Contract value: Not available

User: Eli Atochem

Vendors: Keane; application maintenance; Nynex/Nortel; network services; Western New York Computing Systems; desktops
Contract value: Not available

Source: The Robert Group, Boston, and company reports

Farmland's Dick Weaver:
Huge SAP R/3 project was genesis of outsourcing joint venture between Farmland and Ernst & Young



their processing kingdoms.

But all that is changing — fast. Today's worldwide IT outsourcing market is growing at a rate of 20% per year and will reach nearly \$77 billion by 2000 — up from \$55 billion this year, according to Dataquest in San Jose, Calif.

The big drivers are the skills shortage and year 2000 projects. But chief information officers also realize that outsourcing systems and staff doesn't automatically eliminate their jobs. It changes them instead.

Another key driver is the boom in enterprise software implementations at midsize and large companies. For example, it was a huge, multimillion SAP AG R/3 project that was the genesis for an outsourcing joint venture at \$60 million Farmland Industries, Inc., according to Farmland manager Dick Weaver

number of people reporting to me. It's just not part of the equation," he said.

Bill Stapleton, CIO at \$4.4 billion Handelman Co., said that by outsourcing applications maintenance and support, he has been able to concentrate more on strategic planning at the Troy, Mich., distribution company.

Today's need is less for cost savings and more for rapid access to new technologies and IT skills. These are best met by multiple outsourcers rather than a single source of services, according to Gopi Bala, an analyst at The Yankee Group in Boston.

"I used to spend 40% of my time worrying about the data center. Now I spend 10%," Stapleton said. Like many other

CIOs he knows, Stapleton said, he is far more willing to outsource nonvalue-added tasks, such as payroll processing.

Before, ADP [payroll processor] would come in and, you'd say, 'Get lost, we've got payroll knocked. We don't need you,'" Stapleton said. "But today, it's, 'What? You're still do-

ing payroll? What are you, stupid? Today, companies are more open to outsourcing."

By Julia King

RELATIVELY NEW but on the rise are "equity outsourcing deals" in which customers and vendors form joint ventures.

Some of those partnership companies then go to market with a new combined service, typically in an IT-intensive vertical market such as financial services or airlines. In other cases, the prize for either or both partners is access to a previously untapped market.

Late last year, for example, Commonwealth Bank of Australia signed a \$180 million deal for a 55% stake in EDS Australia, thus gaining a share of EDS' profits in Australia. In exchange, EDS won a 10-year, \$3.8 billion contract for information

knowledge and methodologies to Oakland's internal IT staff.

Users are now more savvy about negotiating financial terms. So-called risk/reward arrangements, under which a vendor's payment depends on attaining certain business results, are becoming more popular.

Sean Canada Ltd.'s payments to Andersen Consulting, which

provides logistics services to Sears, are tied to how well Andersen reduces Sears' inventory.

"More and more, the challenge is to get savings outside of the IT arena into business areas. In the past, the justification for outsourcing was based on cutting IT budgets," said Doug Sewell, a managing partner at Andersen. □

Companies team up for equity outsourcing

technology services at the bank, plus access to the Australian IT financial services market.

In the U.S., OneSystem Group LLC, a year-old joint venture between Ernst & Young LLP and \$10 billion Farmland Industries, Inc., now provides IT services exclusively to Farmland's business units. But two years from now the joint venture will be free to offer its services — a combination of skills in SAP AG's R/3 software and best practices in the process industry — on the outside market.

"What this does is allow us to deliver a turnkey solution to Farmland," which has invested tens of millions of dollars in an enterprise-wide SAP implementation, said Dick Weaver, business area manager at the joint

venture. Farmland gains Ernst & Young's expertise in rolling out complex SAP software to its many locations.

"We're also hoping for cross-pollination, so that after three to five years, Farmland people go to Ernst & Young," Weaver said.

For now, the joint venture also eliminates "we vs. them" problems, Weaver said. "The consulting business has been one of getting the client, then hanging on to the client. And the whole time the consultant is pursuing, the client is trying to figure out how to reduce the consultant's time and get out on his own," he said. What OneSystem does is "take the consulting firm out of the business of pursuing Farmland," Weaver said. □

Businesses go back to school to shrink labor shortage

By Tim Oudette

BUSINESSES are starting to dig deeper into the student ranks to attract future IT workers.

In the process, they are helping to shake the needy image of information technology workers that has hindered their recruiting efforts.

The latest technique is to bring in college freshmen and high school students as interns or job shadowers, help them see the unglamorous parts of IT and hope they come back as employees.

"This is a response to the global [IT] skills shortage," said Margaret Schreier, vice president of human resources at Kraft Foods, Inc. in Northfield, Ill. "We want students to make career choices with accurate information."

Traditional intern programs typically

focus on college juniors and seniors. But Kraft regularly dips into the freshmen ranks to fill its 40 information systems intern positions and even has placed a few local high school students, said Kraft Chief Information Officer Jim Kinney.

Kraft's Jim Kinney has placed high school students as IS interns

world projects, not just make-work duties to fill their time, Schreier said.

"Companies have to dig deeper and lower into the job experience spectrum to even begin to meet the needs we have now," said Harvey Daniels, president of the 500-member Technical Recruiters Network and a recruiter at the American Medical Association in Chicago.

The experiences can help dispel myths about IT careers. For example, one student said his biggest surprise during last month's National Groundhog Job Shadow Day was that a computer job involves more than coding at a keyboard.

"I was surprised about how much contact you have with people on the other side of the computer," said David Lach, a junior at Delwyn-Bennett High School in Kingsport, Tenn.

He shadowed business and systems analysts at Eastman Chemical Co., which is preparing to roll out SAP A/R's R).

The shadowing program, an investment in the future for both students and businesses, shows students the skills they will need to be successful in an IS position, said Phillip Shupe, a systems associate at Eastman Chemical.

High-tech vendors also are getting into the picture, although they played a small part in Shadow Day events (CW, Feb. 9).

IBM recently sponsored a worldwide collegiate programming contest in Atlanta. Also, Gandle Corp. in Santa

Monica, Calif., hires inner-city high school students as paid interns. Last week, Myles Corp. in Fremont, Calif., let junior high school students shadow IT workers at the disk storage firm.

And Cisco Systems, Inc. has set up 194 Cisco "academies" in 18 states that pro-

vide four-semester technical programs for high school and community college students. The San Jose, Calif., firm provides the instructors and equipment.

Will the efforts pay off? Yes, if there are strong recruiting and benefits programs to get interns to return full-time after

they graduate, observers said.

"The next step is to examine the degree that we are able to convert these interns to employees," Kinney said. The company has had a successful conversion rate so far, he said, although he didn't have exact numbers. □

Advertisement

Reliance for Security and Flexibility

Philippines Social Security System relies on the strength of PATROL to manage its distributed computing system

When the Philippines Social Security System (SSS) decided it needed a strong tool to manage the distributed Oracle databases and Unix servers across its nine fully functional data centers, it chose the PATROL product from BMC Software.

"Our aim was to stop the IT department from getting trapped in a cycle of system failures which commonly occurred due to database errors and crashes. In addition, our huge database of applications, systems, resources and files needed automated enterprise-wide monitoring and coordination along with proactive systems management to analyze and control the performance of our distributed computing environment," says Tony Marañon, manager, database administration group, SSS.

The SSS evaluated various products and found, with the exception of PATROL, they did not support all multiple platforms in the organization. In particular, PATROL was the only evaluated product that could support SSS machines running on DEC Unix.

"With PATROL's multi-vendor support, its ability to improve management, through speed up system maintenance, through the automation of many routine tasks, it was the natural choice," Marañon explains. The SSS also took into account the strong local support and the technical expertise that would be provided by BMC Software's distributor Leverage Systems Technologies; and that with PATROL's product-specific modules, time and effort required to train staff would be substantially reduced.

The 16 million members of the government-owned SSS access a range of financial services, such as housing, salary, and stock share loans, through 54 branches across the country. Of these, nine branches serve as fully-functional data centers.

The results with PATROL implemented were immediate. Reduced downtime led to improved customer service and heightened staff productivity. Costs relating to technical support were reduced too as the SSS no longer had to rush support personnel to various branches to correct system errors and restart crashed systems.

PATROL product-specific expertise for monitoring and automating processes, also leveraged the technical skills of the administrative staff and helped reduce training requirements, as well as administrative overheads. Reporting also became more efficient as PATROL kept automatic and regular track of network and database activity. PATROL easily addressed the issue of central monitoring of

remote Oracle databases in a automated and centralized the control of critical elements.

Currently, PATROL consoles are running on the organization's SCO Unix, DECOSF1 and IBM RS6000 machines. Its agents are running on SCO Unix, DECOSF1, IBM RS6000, Sun Server and DEC Unix machines. All databases and Unix machines in the remote offices are monitored centrally from the head office using PATROL. With proactive systems provided by the product, only two database administrators and two systems administrators are needed at the head office to monitor and control the databases and Unix machines in all nine offices.

The SSS is now planning to establish a

back-up and recovery center with an additional license of PATROL. "To be successful in a changing global marketplace, an organization must be flexible and able to address new business opportunities," explains Marañon. "Hence, each SSS data center has its own database to help it respond quickly to the local environment."

"PATROL is an event driven and can manage virtually any application providing a pragmatic alternative to centralized corporate databases. As a result, we now have PATROL-based management control from the head office," says Marañon. "We would like to have the same flexibility and support for the back-up and recovery center, which is why we have requested another license."

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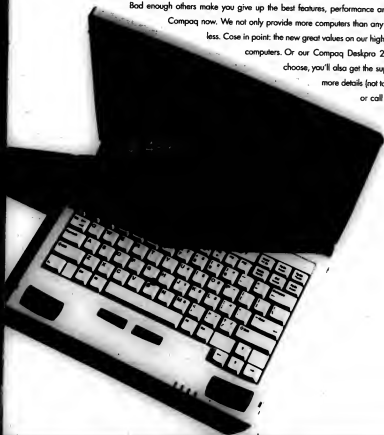
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Travel agency ties units with IBM NC, Java

By April Jacobs

ONE OF CANADA'S largest travel agencies is looking a rollout of 500 IBM Network Stations and a Java-based electronic-commerce application in a \$5 million project that will link its 218 offices

across the country.

For Saskatoon, Saskatchewan-based TravelPlus, Inc., the third-largest travel agency in Canada, the decision to go with network computers was simple and economical, said Glen Kerby, CEO of Points North Digital Technologies, Inc.,

the parent company of TravelPlus.

"The base business case is dramatic in terms of operating efficiencies," Kerby said of the deal with IBM Canada Ltd. He noted that Network Station users will have access to real-time browser-based data they couldn't get before. But even

more important, it will cost \$1,200 per year to maintain each network computer, compared with an estimated \$6,000 per PC, he added.

The agency also plans to build a Notes application with a Java front end, which IBM will then market worldwide as an electronic-commerce package.

Notes would be a good basis for such an application because it is scalable and robust enough for real-time workgroup environments, said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

TravelPlus' new network, dubbed the Online-4 Travel system, will consist of 125 AS/400 midrange server systems and up to 500 Series 1000 IBM Network Stations. The rollout will begin in May and is expected to be complete by August, Kerby said.

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What TravelPlus will gain from network computers and Java:

- Simple, easy-to-deploy hardware
- Write-once, run-many Java-based applications
- Centralized management of desktops

IBM officials said they hope the implementation shows potential customers that its network computer platform can provide quick implementation as well as lower cost of ownership.

TravelPlus sees Java-based applications as a way to link PC users who need Windows access transparently with network computer users on its travel reservation system.

Kerby said the company looked closely at adding to its current PC, and terminal-based system, which would have eliminated the need to develop applications. But it would have been left with too many ongoing support and integration issues. "The opportunity for problems are too scary in an environment like this," he said.

CONTAGION

TravelPlus isn't the only company turning to network computers as a way to ease administration woes and reduce ownership costs.

Sears, Roebuck and Co. in Hoffman Estates, Ill., for example, plans to install between 700 and 1,000 Network Stations to run its delivery and customer-service applications.

Analysts said the best candidates for network computers are customer service and point-of-sale (POS) applications. That's because they tend to work in environments where the CPU and storage power can be optimized on a server, which is easier to maintain and troubleshoot from a central location.

A survey of more than 50 of the world's largest firms by Meta Group, Inc. in Stamford, Conn., found that installing network computers for customer-service and POS applications could save at least 35% of the cost of a PC environment. □



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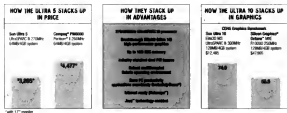
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Cabletron to switch on E-commerce site

By Bob Wallace

CABLETRON SYSTEMS, INC. last week became the third of the Big Four internet-working vendors to launch an electronic-commerce system that lets customers configure, price and order products online

Beta users said CabletronCommerce, which debuts next month for the company's largest 600 customers, streamlines the buying process and is a welcome alternative to relying on middleman sales representatives.

But Cabletron has a long way to go to

catch networking colossus Cisco Systems, Inc., whose online system generated revenue of \$2 billion last year alone.

JCom Corp. has had a system up for six months, but officials didn't give revenue figures. Bay Networks, Inc. plans to roll out an electronic-commerce system in

the fourth quarter.

Nonetheless, Cabletron's system is enabling the Rochester, N.H.-based networking vendor to improve its internal business processes.

The system's configuration tool ensures, for example, that a customer has the right modules for the right switch and that all parts needed to complete a system are provided.

"We were having millions of dollars of misconfigured or incompletely configured products returned to us each year," said Joel Whitman, Cabletron's director of electronic marketing. "By cutting down errors, we expect that the system will enable us to virtually eliminate that problem." The system also is expected to speed the sales cycle and decrease the cost of the configuration and ordering processes, he said.

A feature that lets users get price quotes has a direct interface to Cabletron's SAP AG order-entry system, Whitman said. Customers can also use the online system to track orders.

REVENUE BOOSTER

"There's no reason this system won't generate tens or hundreds of millions of dollars in revenues in the near future," said John Morency, a principal at Renaissance Worldwide, Inc., a Newton, Mass.-based consultancy. Electronic-commerce systems can cut transaction processing time by up to 40%, he said.

Early users of CabletronCommerce said they like the faster configuration and price quotes. "It has reduced the time needed to get a price quote from a day or day and a half to 15 to 30 minutes, which is very impressive and helpful," said Dave Perignon, who handles equipment purchasing and inventory management at Merrill Lynch & Co. in New York. "With the new system, I don't have to spend precious time chasing down my sales [representatives]. There's also much less paperwork and no errors to worry about."

Beta user Monsanto Corp. also has benefited from getting price quotes faster. "It can take up to two days to get system price quotes, depending on how busy our sales representatives are. But now we can get quotes in under a half-hour," said Jerry Nilong, network design analyst at Monsanto in St. Louis.

The system sends the price quote via E-mail to the user and the user's Cabletron sales representative. Nilong said the E-mail is helpful because "it keeps us all on the same page, project-wise." □

April 6

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Vendors use guerrilla tactics to capture non-IS sales

CONTINUED FROM PAGE 1

Two-thirds of technology spending occurs outside central IS, according to an in-depth study by Gartner Group, Inc. in Stamford, Conn.

That is a big jump from Gartner's rough estimate of 28% in 1996.

As part of the Florham, N.J., study, SAP flew Poggensee and a colleague to a user conference in Orlando, Fla., to talk technology with SAP programmers.

The trip didn't seal the deal. Poggensee said, but he did appreciate the special attention. SAP "adapted the demo to our specific business [and] tended to respect our needs" more than contenders Oracle Corp. and PeopleSoft, Inc. he said.

ted line. Guerrilla tactics include signing sweetheart deals with the CEO and scoping out pockets of end-user discontent with the incumbent vendor.

"It's insidious. And it works," said Wendy Lea, a vice president at The Sales Consultancy, Inc., a sales training company in Dallas.

One sales tactic that avoids IS entanglements is to have a "smarter" salesman pick off selected business projects.

Here is how a super salesman works: He first figures the market share of the major suppliers within his target company. He then trifles out department managers who have buying power and pet projects that are going under. The

who are tired of Unix "and go in on the back of that," she said.

Dell, for instance, has an elite group of salespeople called hunters who are assigned to probe Fortune 1,000 companies for weak spots where the incumbent vendor isn't keeping everyone happy. And rivals have "Dell killer forces" that try to steal chunks of Dell accounts, said Roger Kay, an analyst at International Data Corp. in Framingham, Mass.

Good, strong products still matter. "But building a [business] relationship is a new art form," said Aaron Goldberg, an analyst at Computer Intelligence in La Jolla, Calif. "It's trench warfare, where every trench is another account."

Likewise, Microsoft Corp. salespeople persistently call on managers at Indianapolis-based Eli Lilly and Co., a well-known loyalist to Novartis Communications Corp.

Doctors and scientists at M. D. Anderson Cancer Center in Houston routinely log on to find electronic mail pitches from competitors of Compaq, which is the facility's chosen PC vendor.

Dealing with vendor pitches from all sides "has become a natural way of life," sighed Ron Favargue, IS director at M. D. Anderson.

EXECUTIVE ALLIES

When The Boeing Co. needed a new E-mail system a few years ago, Boeing's IS staff expected Lotus Development Corp.'s Notes to win the account. Notes had an official recommendation from IS, sources inside Boeing said, and a deal seemed imminent.

Then came Microsoft, which bided its time in Boeing's top business executives responsible for the final decision. A few months earlier, the two companies had signed an "executive alliance," a document saying they intended to work closely together, one source said.

The executive alliance may have swayed Boeing's top brass to ignore the IS department's vote for Notes, according to Boeing insiders.

Soon after Microsoft Exchange shipped in April 1996, Boeing issued a press release saying it would deploy the new product to 100,000 end users.

A Microsoft spokesperson said Exchange was selected for its technical merits.

Boeing officials didn't return



Tenet Healthcare Corp.'s Carolyn Schneider, director of recruiting, insisted during her job negotiations that she be allowed to make the technology decisions for her department.

telephone calls.

Tag teams are another corollary technique.

While one or two salespeople call on midlevel IS managers, partners pump senior executives for details on the target's critical business problems. They then use this intelligence to devise a script to get a meeting with senior managers, even the chief financial officer.

Over time, all the salesmanship and politicking could disrupt IS plans for companywide hardware and software stan-

dards. Central IS risks losing control, Gartner Group warned. Economies of scale could be lost, for instance, if various business units buy technology on their own without consulting IS.

"A free-for-all on [IS] gives rise to many different systems coexisting in chaos," according to the report.

OUNCE OF PREVENTION

Some users have learned to brace against those attacks with hard-nosed technology standards and policies. But that isn't easy because vendors can find non-IS entry points to easily.

The Dow Chemical Co. has cemented product standards down to the release level. They include IBM PCs and laptops, Microsoft's Internet Explorer, World Wide Web browser and Digital Equipment Corp. networking gear.

And no matter whom they contact inside Dow, vendors peddling new products get shunted to the purchasing department, which most likely turns them away.

"If they're sending an army of salespeople to take up our executives' time, we don't like that," said Kevin McGarran, a global product manager at Dow in Midland, Mich. "There isn't much of an opportunity to come in here. I'm very thankful for that."

Senior editor Barb Cole Connolly contributed to this report.



SAMPLES OF GUERRILLA SALES TACTICS

- Walk around customer offices and find pockets of end users dissatisfied with the incumbent vendor
- Loop over IS and sell to senior executives
- Sell to business managers with buying power
- Create a "script" of business problems, then go to CIO with answers
- Comb the Internet for E-mail addresses of influential company insiders, pitch them via E-mail

Ruben Meleendez, president of The Glomark Group, Inc., a sales training company to Columbus, Ohio, noted how a petrochemical company recently gave a \$44 trillion intranet project to a large software company that visited the user's plants, human resources group and IS. The competing vendor talked only with IS, Meleendez said.

SMOOTH SELLING

The industry is rife with cunning sales tactics to get non-IS buyers — such as the finance, marketing and human resources departments — to sign on the dot

salesman makes a pitch, wins a contract and gradually raises his company's profile at the site.

Dell Computer Corp. won a 10,000-seat deal at Ford Motor Co. that way, analysts said. Ford and Dell officials declined to comment.

"You win smaller deals, with people who might not be getting the attention they want from the chosen supplier," Lea said. The Sales Consultancy trains sales units at Compaq Computer Corp., Digital Equipment Corp. and Oracle, among others.

A PC vendor, for example, might hear about a pack of Windows NT wizards at a company

Account wrestling

For vendors in the fierce markets, winning business often means taking it away from someone else. Sometimes that means stealing a whole corporate account; more often it means persistently chipping away at parts of that account.

Microsoft, for example, has wrested some significant business from one of archival Novell, Inc.'s most revered accounts: the Mormon Church.

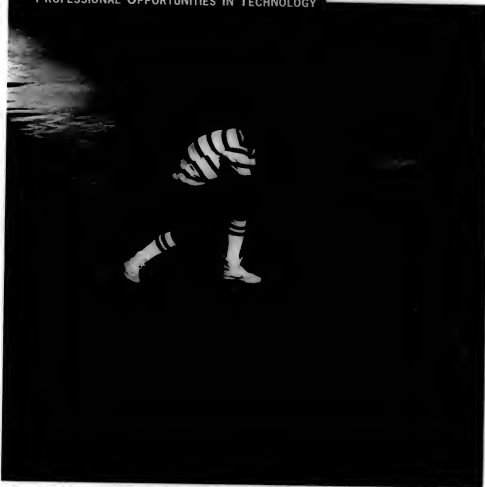
In the past 18 months, Microsoft's Salt Lake City sales force has not only sold the Church of Jesus Christ of Latter-day Saints about two dozen BackOffice licenses, but it has also caused the church to increase its initial complement of four Windows NT Servers to 28. "We never thought we'd buy Windows NT. We considered NT too cumbersome and expensive," said a systems administrator at the church who requested anonymity. "But Microsoft came in and sold us on the price/performance advantages" compared with Novell products.

Novell still dominates the site, with 45 NetWare servers at church headquarters. And the church did renew its Master Licensing Agreement with Novell in January. But church CEO Marvin John conceded that NT Server may usurp NetWare as the church's dominant operating system.

"We have a basic belief that Windows NT is the future," he said. The issue is as sensitive that Eric Schmidt, Novell's CEO, has extracted a promise from the church that if it considers switching to NT completely, it will notify him first, a spokeswoman said.

— Laura D'Elia

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STUDY

Hot trends & technologies in brief

Public-key encryption

DEFINITION: Public-key encryption sends secure data over unsecured networks such as the Internet. It makes data unreadable to prying eyes that might intercept the transmission. Each user gets two keys, one public and one private. The public key is kept in a directory. Anyone can access it to encrypt a message to the person who possesses the corresponding private key. The private key is accessible only by the recipient, who uses it to decrypt the message.

Internet boosts cryptography

By Laura DiDo

PUBLIC-KEY encryption is a 20-year-old technology that's just now catching on as one of the most expedient and inexpensive ways for businesses to secure their data transmissions.

Public-key encryption or cryptography owes its newfound popularity to three things: Internet and extranet growth, an emerging electronic-commerce market and an increasingly mobile and remote workforce.

"What's driving [public-key encryption] is that corporations are telling their IS departments that they must change their business models to send purchase orders or spreadsheets via E-mail," notes John Pescatore, a partner at Trusted Information Systems, Inc., a Rockland, Md.-based security consulting

and software company.

But behind that mandate is a big problem: the security of the data being sent around electronically. In a recent survey of 1,000 large corporations conducted by Big Six accounting firm KPMG Peat Marwick LLP in New York, 41% of the respondents said security concerns were the most significant barrier to their ability to do World

Wide Web-based electronic commerce.

Public-key encryption is one answer, and it can also save a company money and show a near-immediate return on investment.

For example, companies that don't use public-key encryption ship data the old-fashioned way via Federal Express-type services and floppy disks.

"That can add up to quite a

chunk of change for a government agency, a bank, a brokerage or a savings and loan institution that needs to transfer their data to a customer or business partner fast and safe," Pescatore says.

On the other hand, large companies that use public-key encryption can save \$5 million annually "due to lower networking and help desk costs," says Forrester Research, Inc. analyst Carl Howe.

Howe co-wrote a report by the Cambridge, Mass., consulting firm that includes a survey of 50 Fortune 1,000 companies. But Howe says, getting set up initially isn't cheap: A 20,000-employee company will pay more than \$14 million the first year to deploy a comprehensive security plan that includes public-key encryption.

Michael Baum, chairman of the Information Security Committee of Chicago-based American Bar Association, Inc., agrees that the time is right for public-key encryption. He calls it an enabling technology that provides companies, their business partners, customers and end users with the ability to get the information and service they need much faster and more securely.

"Companies can steer customers to online catalogs where they can comparison shop, place their orders online, get expedited delivery and be confident that their personal information and credit-card data are secure," Baum says.

"The bottom line is that public-key encryption creates trusted commerce for all parties doing business," Baum adds. "You wouldn't send personal information through regular mail in an unsolicited envelope or postcard, so why wouldn't you secure your electronic data transmissions?" □

Governing public-key encryption

THE BIGGEST issue with public-key encryption is the debate between Congress and privacy advocates over the right of U.S. businesses to export high-end, 128-bit encryption.

The government wants businesses to give it "back-door access," and it wants to hold all public and private keys. The government's fear: Too much secrecy, in the form of cryptography that it can't decode, could aid terrorists.

Privacy advocates, such as the Center for Democracy and Technology in Washington, contend that's nonsense and could actually hinder U.S. businesses.

"If corporations can't guarantee privacy, they'll have problems maintaining their customers' confidence. The bottom-line impact on U.S. businesses could be immeasurable," says the center's director, Jerry Berman.

Last fall, the U.S. House voted down an amendment to a proposed bill called Safety and Freedom Through Encryption. SAFE would have made businesses give their encryption keys to a third-party "escrow" agency that the government could access.

Just last month, Hewlett-Packard Co. in Palo Alto, Calif., received government approval to export its VeriSecure to customers in five countries.

But the Center for Democracy and Technology, opposes VeriSecure. "HP has built public-key recovery into VeriSecure that can be turned on or off, not by the user, but by government," says Jack Dempsey, senior staff counsel at the center.

One thing to keep in mind is there are no absolutes, according to Dorothy Denning, a professor at Georgetown University's Department of Computer Science in Washington. "The encryption debate is a really tough, gray issue. Before jumping to any conclusions or snap judgments, we must know specifically what encryption controls will go through. Any control will have an impact, but you have to know what the controls are, first." — Laura DiDo



Georgetown University's Dorothy Denning says the encryption debate is "a really tough, gray issue"

HOW IT WORKS: Think of public-key encryption as a series of public and private keys that lock data when it's transmitted and unlock it when it's received.



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OPINION

Slam spammers

The day I accidentally forwarded an E-mail with a pornographic Web site link to one of my male colleagues was the day I stopped thinking "spam" was a harmless annoyance.

I had glanced at the message briefly, noting nothing beyond a reference to an "intriguing word association game." No off-color language leapt out at me. No triple Xs clued me in. But a few seconds after I sent it along, I had the belated urge to check it out.

Imagine my chagrin when the link popped up with a huge picture of a vibrator and a rather specific word association that I didn't find the least bit "intriguing." My colleague is still laughing about it. I'm still considering having my head examined for being such a trusting twit.

So count me among the supporters of San Francisco attorney David Kramer's plan to drop the financial

hammer on spammers.

Kramer is the driving force behind a proposed California state law that would make it much easier for Internet service providers to charge spammers for the unwelcome and costly abuse of

their networks. He's suggesting a \$50 fine per junk message, with a maximum \$15,000 fine, on self-styled cyberentrepreneurs who use Internet service providers for bulk E-mailing without their permission.

America Online, Inc., the nation's largest gateway to the Internet, is endorsing the 30-year-old lawyer's plan, which sidesteps the spectre of government regulation of content and follows the money instead. It has the additional appeal of leaving bulk E-mail policies up to the Internet service providers themselves.

There have been a few recent and heartwarming court cases punishing junk E-mailers—including last week's victory by E-mail provider Bigfoot Partners LP against bulk mailer Cyber Promotions, Inc. But the Internet service providers are understandably leary of antispam legislation and case law that could trip up their own future revenue from commercial E-mailing.

If David Kramer succeeds in making his antispam rule a law in cyber-savvy California, I hope it keeps right on rolling into other states, as well. I'd like the next "intriguing word association" I come across at work to read: "Spammer driven out of business by \$10,000 fine."

Margy Johnson

Margy Johnson, executive editor
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Worker quality matters, too

THE SHORTAGE of software talent is finally making headlines as the government recognizes the economic importance of the systems these folks build and the consequences of not having enough people to build them. The problem isn't the reported 340,000 current job openings. It's the last 100,000 software developers who got lured as firms became increasingly desperate to fill posts.

Current proposals to address the nation's shortage of IT talent include measures to transition people from other fields, retrain people with obsolete skills and even train the hard-core unemployed to do programming. In Malaysia, where the shortage of talent is recognized as a major barrier to that country's high-tech future, programs have been proposed to "reskill" ex-convicts and drug addicts.

Our businesses and our lives have become dependent on millions of programs working correctly almost all the time. Software is serious, professional work—well-paid work—but software professionals are not licensed, often not formally trained beyond the language level of software engineering and still not respected for the value they've collectively created. As the most talented migrate to jobs at companies already aware of the strategic importance of their software—like Microsoft, Motorola and Citibank—who's replacing them? And what will the consequences be for the economy and for our lives?

Arren Bari and Shirley Tester
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Thanks for cutting hype

THANKS to Computerworld columnist Bill Labers for cutting through all the hype ("One big pile," CW, Feb. 2). I have the article thumbtacked to my canteen bulletin board.

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NT can be the right tool

THE PEOPLE who are complaining about Windows NT must either not understand it or have used third-party software before testing it. We have converted our technology staff to Windows NT from Windows 95 for application development because Windows 95 caused too many problems. Since they have been on NT, they haven't experienced any problems. People should recognize what NT is good for: file and print services and workgroup application servers.

The issue of NT and Unix is not an either/or proposition. An intelligent IT person will look at what needs to be accomplished and use the appropriate tool. The real key to IT is solving the business problems and helping your company make money, not making a holy war between NT and Unix.

Sean Blake
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No more supermodels?

AFTER READING Computerworld's Jan. 26 article on the IT workforce ["The numbers game"], I did some research on your Web site regarding H-1B visas for foreign temporary workers. I found an article ["Visa ceiling bars foreign programmers"] that says that "About 2,500 of the 55,000 H-1B visas granted last year were for computer specialists, mostly programmers."

That makes me think the impact of the H-1B visas awarded is negligible when compared with a 2.184,000-strong IT workforce. And given that most H-1B visas are granted to foreign fashion models who obtain one visa for each fashion company they work for—sometimes for very short assignments—maybe the Information Technology Association of America should lobby for a new category, "H-1C," where the "C" stands for computer professional. We can leave H-1B for the "beautiful" people.

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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Margy Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

All hail the chief ignorance officer

Thornton May

Curmudgeon and eminent grise though I be, I admit to having been seduced by the hysteria around knowledge management. I further confess to having gone so far as to invest the scarcest resource of all — time — conducting groundbreaking research on the topic.

What did I find?

The strategic resource that must be managed is ignorance!

Business scholars (is that an oxymoron?) envision a day when the CIO recites himself chief knowledge officer, or CKO. That would be a terrible mistake. CIOs are only now recovering from the handicap of their title: never has a more misleading one been foisted on organizations. The CIO isn't in charge of anything. High-priced machines, not information, are the things being managed. And in most cases, the CIO isn't an officer of the company.

The future belongs to organizations that aggressively manage what they aren't aware of.

Visionary CIOs ought to assume a title that truly connotes their role and value in the organization: chief ignorance officer.

"Ignorance" is a misunderstood word. It's not a synonym for stupid. It simply denotes lack of awareness.

We live in a world that is unknowable. Did we know when Windows 95 would finally ship? Did we know when Win-

dows 95 would finally work? Do we know when the Internet will be secure? Do we know how much information our customers provide about themselves?

No, no, a thousand times no. But we must go about doing business.

The future belongs to individuals and organizations who aggressively manage what they aren't aware of. The processes associated with identifying what you are ignorant of and what you should do about that ignorance will soon become critical differentials. The ability to accept ignorance not as a weakness but as a defining reality of the chaotic world we live in is the first step toward world-class corporate performance and the world-class systems that such corporate performance is predicated on.

CIOs should start embracing ignorance on the front end of the technology life cycle. That is, low and when technology enters the organization. The request for proposals process that prevails in most organizations is too stupid. Technology organizations deny their ignorance, saying that the bunch of lists they send to ethically constrained but

word-process-powered vendors constitutes a legitimate problem statement.

If you really know what the problem is, put it on your Web site — along with how much money and time you are willing to spend to solve it. Then let the solution providers bid for the right to solve it under the fiscal and temporal terms you have dictated.

If you're ignorant of your problem (and who among us isn't?), bring in as many fresh perspectives and unique voices as possible. Moshe Rubenstein, founder of the Center of Business Renewal at UCLA, says, "The more mistakes and uncertainty in the initial stages of your collaboration, the better off you are. Because if you don't have it at the beginning, you are most likely to have it where? At the end."

Industry analysts point that knowledge management is the natural next step in the evolution of information management. Knowledge management may be the next step, but it's not the final step. The final step will be ignorance management. □

May is vice president of research and education at Cambridge Technology Partners, Inc. in Cambridge, Mass.

Cautions on clustering

John Gantz

About 10 years ago, the idea of RAID — redundant arrays of inexpensive disks — came into the storage lexicon. Now a similar idea is coming into the processing lexicon: clustering. This is the use of interconnected computer systems, each running its own operating system, as a single unified computing resource.

The concept is as old as the hills. We've been clustering mainframes for years to increase processing scalability and share peripherals economically. What refreshes the concept is that people are talking about doing it with Intel-based processors. Microsoft has an NT initiative, as do Novell and IBM. Disk drive companies such as EMC and Hitachi, as well as software suppliers such as Oracle, Teradata and Veritas are pushing the concept.

At a recent briefing for clients, my International Data Corp. colleague David Floyer predicted that by 2001, about a third of Intel servers shipped will go into clustered environments, most running

NT, compared with only a negligible amount used in this setting today.

I guess that as with RAID, users will expect to use clusters of inexpensive Intel processors to replace midrange computers or mainframes. Floyer looks for a handful of cluster types to emerge, some designed to provide high availability, some for resource sharing, some to host dedicated applications such as SAP R/3 and some to provide scalability of system functions.

I don't doubt Floyer's forecast; lots of us will deploy Intel server clusters in the future. But I worry if we'll do it wisely. Or if we'll be able to predict the shifting needs of our

user bases, which could suddenly make clustering uneconomical.

Floyer points out that the vaunted scalability of server clusters will apply only to simple and read-only applications that continuous availability will really mean simple fail-over and come at a high cost and that there will be lots of hidden costs in deploying clusters. I expect a lot of trial and error with server clusters until IS discovers how to best use them.

What would worry me most as an IS professional is the possibility of untrammeled expansion.

The more servers in a cluster, the more chance for communications and inter-process overhead. This white noise grows logarithmical-

ly. It's all too easy for the processors to spend 99% of their computing cycles on coordination and housekeeping and 1% on processing.

My advice is to not rush. It took several generations of RAID disk systems before the technology became robust enough to depend on. The same is bound to be true for server clustering. It also will take several generations for enough field experience to accumulate for us to know the real limits to and sweet-spot applications for clustering.

The last thing you want to do is spend two years in development and rollout of a major cluster-based application only to discover when you get to full operational load that you really do need a bigger computer.

Intellectually, I find the clustering concept appealing — lashing smaller, inexpensive servers together to do the work of large, complex systems — but somehow I don't think it's going to be easy. Don't be a guinea pig. □

Gantz is senior vice president at International Data Corp. in Framingham, Mass. His Internet address is gantz@idcresearch.com.

Lashing small servers together to replace complex systems is appealing, but perilous.

COMMENTARY

The missing buzzword: Appropriate

Allan E. Alter

I hate buzzwords. They're misleading, they're tiresome, they make something big out of nothing much. But there is one word that I'd like to hear much more of: Appropriate.

I hear earfuls about leading bleeding-edge, value-added, value-driven total business solutions. But no one talks about appropriate technology.

Appropriate — now that's a word we can use. It means remembering that information technology is only a tool, not a solution. Appropriate technology is the right tool for the job — it gets the job done, does it simply and doesn't waste time, money, resources or effort.

It means not being a slave to technology fashions and saying no to solutions looking for problems. It means using older technologies that are sound and sufficient and avoiding technical solutions when simplifying a business process will do. It means being alert to the nasty side effects technology can have — and dodging them.

The people at USAA understand appropriate. The San Antonio financial

company doesn't have a public World Wide Web site. That's not reactionary — that's smart. The company sells insurance only to military officers and their families, and it already knows how to reach its market. Why build a site that would only frustrate most surfers, telling them they can't buy insurance from USAA? So USAA passed up the first wave of Web sites. But now that tools have evolved, the company is building a site that will provide service for existing customers. USAA held off on Web-based commerce until it could do some real good for its customers.

That's using technology appropriately.

Williams Technologies, a company that remanufactures car transmissions, understood appropriate when it built a simple MS-DOS-based system that helps factory workers assemble transmissions more quickly and accurately. Computers on the assembly line show workers how to assemble parts with step-by-step instructions and pictures. The system helped quadruple sales and is so simple,

a lone IS professional and a few factory workers built the pilot in seven months for \$27,000.

I wish the airlines understood appropriate. Their voice-mail menus are long and confusing; it takes forever to get someone on the telephone.

And imagine if a resort forced you if a resort forced you to check in electronically at the front desk or use the TV clicker to order room service or make an appointment for a back rub. That hotel would close down fast. Guests at fancy hotels want to be pampered by people, not machinery. But give

ing check-in clerks and masseurs a system that tells them about the likes and dislikes of guests is appropriate. That way they can pamper guests even more. "Appropriate technology" would make a great buzzword.

I heard it first when I visited Toyota headquarters in Japan. For Toyota, appropriate means investing in a global network, developing its own computer-aided design and manufacturing software and creating the Lexus customer service database. But when it comes to manufacturing, Toyota almost always chooses simple processes over technical complexity. Since my visit three years ago, the company has turned away from "mass customization" and returned to building simpler, less costly cars with fewer parts. That has helped Toyota reduce the price of its best-selling Camry.

So beware of those tired buzzwords and brush up on appropriate technology. You might tick off a few rabid technophiles but your customers, management and shareholders will thank you. □

Alter is Computerworld's department editor, Managing. His Internet address is allan_alter@cw.com.

Intel's pain is your gain

David Moschella

Intel's stock has soared so high for so long, it may seem like no big deal that it has come down a bit. As a customer, you certainly don't care whether the company's disappointing quarter was because of slowing PC demand, channel inventory adjustments or the

impact of cheap Asian currencies. But occasionally there are deeper explanations that are worth understanding.

This is one of those times.

For the past 18 months, I've been saying that until at least the turn of the century, network computers will be much more of a metaphor than a market. This has never been more true than it is right now. While network computers from IBM, Sun and Oracle continue to have just about zero market impact, the power of network-centric computing is changing the very nature of the PC business.

You have a good sense by now of what network computers are all about. Desktop computers are more like network access vehicles than separate computing platforms, and IT investments have shifted toward the enterprise network in-

frustration. The logical consequence is that the overall pace of PC upgrades should slow, and when you do buy additional PCs, you will likely trade lower performance for lower prices. Those lower prices will further the long-term goal of device ubiquity, despite today's apparent unit demand lull.

From Intel's perspective, that is a mixed blessing. Since the company is the world's only high-volume, Microsoft-compatible chip manufacturer, the more PCs the better. On the other hand, Intel has always benefited enormously from customers' willingness to adopt its latest

and fastest microprocessors. That mutual commitment is fading away.

Remember how employees used to beg, battle and barter for advanced x86, x86- and x86-based systems? That meant customers and Intel were on the same upgrade cycle — a concept consistent with a PC-centric view of computing. But in a network-centric world, the gap between what Intel can provide and what customers need will steadily widen unless a whole new range of desktop applications emerges. That's why Intel is emphasizing audio, video and 3-D technology.

But that strategy isn't working yet. Intel made a big deal about

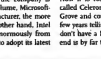
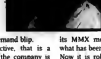
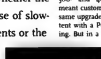
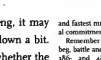
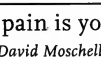
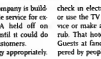
its MMX multimedia technology, but what has been the real customer impact? Now it is rolling out a low-end brand called Celeron. This will be tricky. Andy Grove and company have spent the past few years telling us we are nowhere if we don't have a Pentium. Now that the low end is by far the fastest-growing PC seg-

ment, that message apparently will change fundamentally.

Competition is critical to this whole process. As a customer, you may not think much about AMD and Cyrix. They remain minor players that have often found it hard to keep their promises. But if it weren't for their perseverance, imagine what Intel's price would be like today. Root for them. Like AMDahl, they are probably destined to save customers far more money than they ever earn for themselves.

Don't get me wrong: Intel's future is still incredible. Once its 64-bit Merced chip is available, it will take over the server market with Windows NT and Unix-type systems — an unprecedented achievement. And someday, we will all most surely want our computers to speak, hear and see. But in the meantime, PCs are looking more and more like network appendages. And as long as that is the case, falling prices will be the spirit of the times. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is david_moschella@cw.com.



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Landscape/Portrait Modes	No	Landscape/Portrait	No	No
On-Screen Controls	No	No	No	No
Overclocking/Zoom	No	No	No	No
Low Temperature	No	No	No	No
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Briefs

E-payments at the Fed

The Federal Reserve System has announced plans to distribute financial electronic data interchange transaction software to its own institutions connected to FedLine, the Fed's electronic payment infrastructure connection. The Fed acquired the software from Boston-based Technologic, Inc. in Portsmouth, N.H. The software is part of an initiative to convert all federal payments to electronic funds transfers by Jan. 1, 1999.

Shopper picks Shway

Newcomer-based Shway Corp., a \$20 million PC network logistics firm, has selected Shway Logistics Systems, Inc. in Westerville, Ohio, to be its primary logistics and transportation services provider. Shway will manage logistics and transportation operations for Shway's distribution centers in Livermore, Calif., and Indianapolis.

Consumer bank service

Republic National Bank of New York has signed a letter of intent to license Atlanta-based Securities First Technologies' Internet banking software to allow the New York bank's customers to pay their credit-card bills online.

E-commerce boom

A survey by Zinnov Research, Inc. found that 44% of U.S. companies will move their e-commerce to the Internet within two years.

Worldwide telecommunications year 2000 challenges

Lives of code in switching devices: 4.7B
Vendors with products in infrastructure: 1,200
Products used in infrastructure: 23,000
Total year 2000 cost: \$96.5B

Source: Strategic Economics, Inc., Cambridge, Mass.

Integrator choice: a matter of taste

► Wine dealer makes it online after errors

By Julia King

TWO YEARS AND FIVE Web development firms later, Jim Weinrott finally got what he wanted.

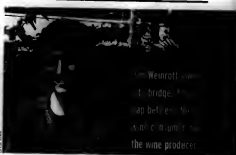
The wine importer and distributor from Narberth, Pa., wanted to create a virtual marketplace where distributors, retailers and consumers could exchange information.

Weinrott's idea was to build a World Wide Web site and get its address printed on wine labels. That way, buyers and sellers

could easily share information that is hard to come by given the industry's multistep distribution structure.

SYSTEMS INTEGRATORS. Producers, for example, don't know who ultimately consumes their products or where they obtain them. If they had that knowledge, the producers could improve their own planning and give consumers more of what they like.

In late 1995, Weinrott set off on what became a high-tech services odyssey. The journey began with a visit to an indepen-



Jim Weinrott, owner of the bridge wine shop, before he was a Web producer.

dent Web designer, who told Weinrott it would cost \$6,800 and take three weeks to build the site he described.

But no work was ever done. The lesson learned: If it sounds too good to be true, it probably is, Weinrott said.

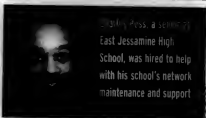
He then turned to a Web development firm he found on the

Web itself. During many telephone calls and in dozens of electronic messages, the systems requirements were laid out. The company took on the project and sent Weinrott a contract.

But he was outraged by a clause that gave the company

Wine, page 40

Shayla Doss, a senior at East Jessamine High School, was hired to help with his school's network maintenance and support.



Schools promote IT talent in students

► Teens hired to maintain districtwide networks

By Tim Ouellette

KENTUCKY'S PUBLIC SCHOOLS have tapped a new source of IT talent to build and maintain many of its systems: the students themselves.

In what observers call an innovative program, groups of select students are hired to maintain districtwide networks that house school World Wide Web sites, electronic-mail systems and basic office applications.

The students will soon get training that will make them Certified Novell Engineers or

Certified Network Administrators before they even get their high school diplomas.

Each day after school, for example, 18-year-old Charles Ross, a senior at East Jessamine High School, checks the Jessamine County network's problem report and gets to work. Issues can range from fixing an E-mail bottleneck to training a teacher on how to use a specific application.

"Most school districts [in Kentucky] recognize that the wealth of technical knowledge lies with

Schools, page 41

Down and up in Atlanta: Tech business saves failed music producer

By Thomas Hoffman

SCOTT SCHUSTER has seen more than his share of career setbacks and rebounds. The latest chapter, though, could be his highest profile yet: a possible seat on President Clinton's year 2000 commission.

Five years ago, one of Schuster's business partners ransacked the Atlanta recording studio they co-owned and took off with everything, from the synthesizers to the toilet paper rolls.

It was a tough turn for Schuster, whose studio had nurtured the careers of recording artists such as the rockabilly Cigar Store Indians and the rock/folk band Viglantes of Love. Left with no viable means of recovering his losses, Schuster had \$50 to his name, a pregnant wife, two hungry toddlers and nowhere to go.

Thanks to the generosity of some friends, who took in the family, Schuster emerged from

bankruptcy within a few months. He returned to a previous career as a contract programmer and began an incredible rebound.

BACK ON TRACK

After several successful consulting gigs, including a six-week rush job to fix an inventory management system used by The Southern Co. at the Olympic Summer Games in Atlanta, Schuster, 34, went on to build a 42-person, \$15 million information technology consul-

Down and up, page 40



ITC President Scott Schuster's never-say-die spirit helped salvage his career

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Down and up in Atlanta

CONTINUED FROM PAGE 39

lancy. He now drives a big Mercedes when he isn't splashing around in his two-engine, 27-foot cabin cruiser on Atlanta's Lake Lanier.

Schuster's never-say-die spirit and entrepreneurial savvy have helped the publicity-hungry, Michigan native salvage his career.

"Everything in life comes back around to you," Schuster said.

The recording studio debacle wasn't Schuster's only unexpected setback.

In the late 1980s, Schuster said, he was doing "low-level" LAN/WAN networking jobs for customers such as SunTrust Banks and Hewlett-Packard Co. when his father suffered a heart attack. That forced Schuster to return to Detroit to run his father's medical practice.

Schuster ran the family business for a year before his father fully recovered. Then he developed and sold medical billing systems after he learned how to program Basic from a textbook. He landed several big billing systems contracts, then Schuster, a classical pianist who plays several musical instruments, put

his programming aside and sank \$250,000 from his billing system sales into the recording studio.

After the studio collapsed, Schuster and his family moved into the home of the owner of a nearby Quik Trip convenience store Schuster frequented. The store owner's wife was a Vigilantes backup singer.

The Schusters crammed themselves into a spare room their good Samaritans offered them. "It was tight," Schuster said. "But we didn't have much choice at the time."

TURNING THE TIDE

Having now built a consulting business, Schuster has a little more legroom these days. He is currently president and CEO of Innovative Technology Consultants, Inc. (ITC) in Atlanta, where he has just bid on a \$9,000-a-ft. house.

ITC, formed in August 1996, was sold last June to Phoenix International Industries in Palm Beach, Fla. It is now a wholly owned subsidiary of Phoenix International.

ITC has three divisions: staffing,

which provides contract programmers to Fortune 500 companies such as A&T Corp. and Georgia-Pacific Corp.; outsourcing and business process re-engineering consulting; and cradle-to-grave year 2000 services.

One ITC customer said Schuster's biggest asset is his ability to communicate in easy-to-understand terms how long an application development process will take and what the consultants do to make it work.

"We could have picked any [vendor] to do this job," said Don Wharf, director of operations at Medac, an Augusta, Ga.-based medical billing services company. Wharf said Schuster's company also has "some really capable people behind the scenes."

Medac, which generates about \$54 million in annual revenue, hired ITC last summer to rewire an old warehouse and set up a Windows NT network and NT-based billing system for anesthesia services. The privately held company is slated to replace its DOS system this summer.

To recruit and retain people, Schuster offers "above-market-rate" salaries: from \$35,000 for an entry-level Hypertext Markup Language programmer to \$200,000 for full-blown client/server architects. He said he also uses other retention tools, such as 401(k) plans and, for prized programmers, equity stock positions.

Schuster said would-be entrepreneurs need to make sure ventures aren't underfunded and must make their company visible.

"I spend 99% of my day doing marketing and PR stuff. It's really a networking business," said Schuster, who regularly speaks at user group conferences in Atlanta.

BRIGHT FUTURE

Looking ahead, Schuster is waiting for word on his nomination by former Florida Gov. Claude Kirk to President Clinton's soon-to-be-established year 2000 commission, which should be announced within the next few weeks. Being named to such a prestigious panel of high-tech dignitaries "would be something, wouldn't it?" Schuster said.

Kirk, who was governor from 1967 to 1972, is now an adviser to young entrepreneurs in West Palm Beach. He said he met Schuster six months ago through mutual acquaintances.

Kirk called Schuster "a bright young man who's got a real feel for his industry," an assessment that Kirk said led him to nominate Schuster for the year 2000 commission.

One business executive who hires contract programmers said Schuster's story was "intriguing," but hiring ITC would require a thorough background check, especially the consultant's financial footing.

"If this guy came from nowhere and has innovative solutions for the industry, that's a positive," said Tommy Block, global business vice president of the emulsions polymers unit at The Dow Chemical Co. in Midland, Mich. □

Wine dealer makes it online

CONTINUED FROM PAGE 39

ownership of all code produced on the course of development.

"That's like an artist who you pay to paint a picture of your kid taking the picture back whenever he wants because he used his own paint," Weinrott said.

He refused to sign the contract. But the company still went ahead with the project and charged the wine importer \$35,000 to develop the first iteration of WineAccess (www.wineaccess.com).

CODE WORLD

Weinrott also got to keep the code, which is something all clients should demand in writing, said Marlene Bauer, a senior consultant at International Computer Negotiations, Inc., a consultancy in Winter Park, Fla. "If there's any type of underlying code that would belong to the supplier, clients need to get in the contract a perpetual and irrevocable license to that code," she said.

When it came time last year for Weinrott to enhance and update the site, he interviewed three local development firms and selected Omnicron Consulting Group in Philadelphia. That was the one firm that agreed to a fixed price.

"I had learned that you really need to sit down in a room with the technical people, rather than E-mailing and telephoning, to get what you want," Weinrott said. His advice for other businesspeople is to closely consider the skills and talents of individual team members assigned to their projects.

"For instance, I know that the real key to the success of our site was one 26-year-old developer at Omnicron," he said.

That developer, Kevin Durr, now runs his own company, Not Sold Separately.Com in Collingswood, N.J. He recommends casting a close eye on the Web developers, namely their motivation and enthusiasm, rather than the firm itself.

Web search

"One company brought two sales people, one designer, one designer manager and a software person — all billing out at \$24 an hour — to the Mid-Off meeting. And I already knew what I wanted."

— Jim Weinrott, president, WineAccess

"All of the stuff we're doing is new, so you can't go out and find people who can say, 'We've been doing this for five years,' because no one has been doing it for five years," Durr said.

As for Weinrott, his late nights and learning finally paid off. Last May, four months after enhancing the WineAccess site, his company, WineAccess, Inc. in Nanterth, Pa., received its first \$2 million in venture capital. Earlier this month, the company received another \$5 million. □

Schools hire students for IT

CONTINUED FROM PAGE 30

the students," said Larry Allen, superintendent of schools in Jessamine County, a 6,300-student district in eastern Kentucky.

And with the shortage of skilled information technology workers "we couldn't afford to operate this network right now without the students," he said.

Also, the state, which has invested millions of dollars to outfit schools with computers, Internet connections and network access, gains a well-trained workforce and immediate help maintaining those networks in the bargain. About 500 schools statewide are involved in the program.

For example, 16 students in Jessamine support a 1,000-node Novell, Inc. NetWare 4.11 network, along with Windows NT Servers that run Microsoft Corp.'s Exchange E-mail system. The district has only one part-time professional network manager to handle other problems.

"We couldn't afford to operate this network right now without the students."

**- Larry Allen,
superintendent of schools,
Jessamine County**

In Anderson County, students designed and managed the county intranet, which includes chat areas for teachers, administrators and students.

By growing up with computers, education officials said, today's students adapt much faster than adults to changes in computer technology and solving network and Internet problems. "I've found with technology that most of it is the same with different jargon," Ross said. For example, he said he finds little problem working on Novell and Microsoft servers and while monitoring the county's telecommunications bridge.

At the Kentucky Education Technology Conference earlier this month, Ross and other students also helped build the wide-area network that ran the conference and demonstrated software products to attendees.

Kentucky is just one state starting to bring this level of technology training to students. Wyoming is training students to be Microsoft engineers with the help of the Redmond, Wash., company, said Alan November, a principal at Educa-

tional Resource Planners, a Chicago consultancy.

And West Virginia has wired all of its 815 schools for Internet access and expects soon to take Kentucky's approach to support those networks with student technical managers.

"I think this will be a national trend just from a standpoint of the funding issue and resources available," said Bill Burrall, coordinator of instructional tech-

nology programs for Marshall County Schools in Moundsville, W.Va.

Burrall and Kentucky officials agreed that there is still a need to segment their networks to keep sensitive information, such as students' grades, separate from student administration. But the new LANs and intranets that host Web pages, E-mail and local applications are excellent candidates for student support, Burrall said. □

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Briefs

No discounts online

Despite the lower cost of selling online, prices aren't any lower on the World Wide Web than elsewhere, according to a study by the Organisation for Economic Co-operation and Development (OECD). The study, available at www.oecd.org/dataoecd/14/14/1998041.pdf, explained that the relative abundance of early Internet shoppers could explain why Web-based businesses still charge store prices. The OECD is an international organization with member nations from North America, Europe and Asia.

Netscape source code

In anticipation of the release of its free Communicator 5.0 client source code, Netscape Communications Corp. has posted a draft version of its licensing terms. The draft can be viewed at www.netscape.org.

Oracle does E-commerce

Oracle Corp. has begun shipping Payment Server 1.0 software for electronic commerce, a Java add-on to the company's Application Server 3.0. It is bundled with third-party payment software to handle both credit cards and electronic cash. Pricing starts at \$40,000.

Microsoft support

Microsoft Corp. has announced a support program for Internet service providers that have licensed its Internet Explorer browser. Microsoft will provide Internet Explorer Administration Kit 4.01a to help service providers distribute the software, a deployment guide, an instructional training video and a Web site.

E-MAIL IN AN INSTANT

People using instant messaging to send E-mail



* Projected

Source: Author Communications, Inc., New York

Games serious at Sony

► Entertainment giant injects multimedia into electronic-commerce site

By Sharon Gaudin

SONY ONLINE VENTURES isn't playing around with its popular online games and electronic-commerce site.

The New York-based unit of Sony Corp., a giant in electron-

ics, movies and videos, is using Java to rev up and differentiate its World Wide Web site. Sony is taking its successful game sites into a new realm by turning its fairly static single user games into interactive, multimedia ventures with fast-paced

animation and graphics.

And so far it is working. Sony was the most popular entertainment Web site of 1997 among all sites accessed from home PCs, according to Media Metrix, a media research firm.

"The Web is being viewed

more and more as an entertainment platform, and consumers demand very different things from their entertainment than from buying a book online," said Lisa Simpson, a

Sony, page 47



Willling to take his balls with Java

GeoCities to host online shops

► Web sites will handle credit-card transactions

By Sharon Machis

TOP-10 WEB destination GeoCities will roll out a major electronic-commerce initiative April 1, allowing any business to set up a World Wide Web site and sell goods there.

GeoCities officials predicted that they will host 100,000 commercial sites within 12 months, with 10,000 of those set up to handle credit-card transactions. They projected that GeoCities will pull in \$10 million in new revenue this year from the venture.

"This is one of the initiatives that we are building on and planning on for profitability by the end of the year," said David Bohmert, CEO of the Santa Monica, Calif., company.

Under the GeoShops program, on the Web at www.geocities.com/join/geoshops/, merchants will pay \$24.95 per

month for listings in GeoCities neighborhoods and a \$120 one-time fee if they want credit-card processing on their Web sites. That processing will be handled by Internet Commerce Services Corp., an Internet transaction company in Nashua, N.H. It will use electronic-commerce software from Open Market, Inc. in Burlington, Mass.

There is also a monthly charge of \$40 plus 5% of transactions, or \$80, whichever is greater. Another \$100 fee goes to the InterNIC to register a merchant's domain name. Shop owners register their sites, request domain names and build Web pages. They also decide how to fulfill orders.

Scott Smith, an analyst at Current Analysis, Inc. in Sterling, Va., said GeoCities' targets are optimistic. "GeoCities seems to be building layer up

GeoCities, page 44



• Orders, information online

Nu Skin distributors plugged in

By Carol Slino

WHEN NU SKIN INTERNATIONAL, Inc. launched its password-protected Web site in October 1996, company officials were merely trying to offer a supplemental support tool to Nu Skin's home-based sales force.

But now that the extranet has been in place for 16 months, the company is starting to realize the site's potential.

Last year, distributors used the extranet to file \$1.4 million in orders.

"We initially invested a certain amount to have this site, and we'll probably have it paid for in the next year or two," said Brent Rine, vice president of information technology at Nu Skin in Provo, Utah. "We knew we were sinking money into something that we wouldn't see

Nu Skin, page 64

World Wide Wait

The average time, in seconds, to download a home page from one of 40 business-related Web sites during business hours the week of March 2

Top 5 best-performing Web sites	Slowest access to Web surf
UUNET	6.87
UPS	9.97
Altavista	10.78
Fidelity	12.68
Compaq	13.38
Most access to Web surf	
Milwaukee	11.68
Atlanta	12.67
Seattle	14.24
Philadelphia	53.04
Minneapolis/St. Paul	38.38
Phoenix	32.30

Source: Response Systems, Inc., San Mateo, Calif.

Nu Skin distributors get plugged in

CONTINUED FROM PAGE 43

an immediate payback for, but we knew we needed a presence on the Internet."

"I think the eventual expectation is to significantly reduce operating costs —

the printing, postage and staffing that currently are required to provide the same type of distributor support that we're now able to provide on the Web,"

said Monique Fraser, Nu Skin's manager of global World Wide Web services.

More than 11,000 of the company's 600,000 active distributors, scattered among 24 countries, use Nu Skin's extranet to get information about the cosmetics, nutrition and other personal-care products the company offers. They also place orders online, arrange for product shipments, track orders, check personal sales volume, sponsor new distributors and monitor their monthly paychecks.

The paycheck monitoring is particularly compelling to distributors, who receive commissions not only from the products they sell but also from the revenue generated by anyone they bring into the company.

Through the password-protected Web site, they can log in and get the current status of their own sales and those of distributors they sponsor.

Nu Skin hopes round-the-clock, Web-based support services will give it a competitive edge when trying to attract new distributors and retain its existing sales force, Fraser said.

"It enables me to work when I want to work and get information that I want when I want it. I have a lot more flexibility," said Kathy Havel, a Raleigh, N.C.-based distributor.

U.S.-based distributors pay \$70 per year for the service. They get a Nu Skin-hosted electronic mail account, a dynamically assembled personal Web site and access to Nu Skin corporate databases. Although the company eventually will have to decide whether distributors should pay for Web-based support, currently the fee creates a greater sense of

value, Fraser said. "If they pay for it, they'll probably use it more," she said.

Currently, users outside the U.S., who don't pay the fee, must access the English-language site. But plans are under way to translate the site into other languages.

The company also is redesigning the extranet so that distributors can take orders online and use additional business management tools, Fraser said.

Nu Skin hired an outside consultant, Synapse Group, Inc., in Dallas, to build its extranet site, which uses Web servers



Nu Skin distributors used the company's extranet last year to file \$1.2 million in orders

from Netscape Communications Corp. and Sun Microsystems, Inc. Because the main applications use server-side Java, which processes data on the back end and delivers it to browsers in Hypertext Markup Language, it doesn't matter what kind of clients the sales force has.

A company survey showed that about 70% of the U.S.-based distributors own PCs, and about half of those have Internet access, Fraser said.

"This is ideal with that kind of [business] model," said Allen Bende, an analyst at the Extrix Group in Boston. "This is a virtual organization, and using the Web as an extranet is probably the most cost-effective, efficient way for them to interact with and be part of the organization without having to develop their own infrastructure." □

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GeoCities to host World Wide Web shops

CONTINUED FROM PAGE 43

on layer into good content, but it's going to take a lot to get that many merchants online," he said.

GeoCities has been extraordinarily successful in drawing traffic to its site, thanks to its "communities" approach of matching people with similar interests.

Members can set up free Web pages in various interest areas and take advantage of chat rooms and bulletin boards. The company claims more than 1.4 million homesteaders, as members are called, and 61.4 million page views per month.

RelevantKnowledge, Inc. in Atlanta ranked GeoCities the No. 7 Web destination last month, with more than 12.5 million unique visitors age 12 and over. It also said GeoCities was the second-fastest-growing site last year.

But popularity and profitability can be separate things in the Internet industry.

Many players are still honing their business models so they can get in the black.

GeoCities has already started cashing in on its Web traffic, via advertising on its site, partnership deals with major Web merchants and \$4.95 premium memberships that give homesteaders more storage space and a personal uniform resource locator. Now the company hopes small and midsize merchants will join its site for the high numbers of Web surfers who come to GeoCities. "The vision from the beginning was to create a community of interest on the Web that combines both commercial and consumer activities," Bohnett said.

"Retailers want to get in front of [a large] audience," said Patrick Keane, an analyst at Jupiter Communications, Inc. in New York. "I think you're going to see others doing this." □

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Sony games

CONTINUED FROM PAGE A3

senior vice president at Sony Online. "People expect something more just because it's Sony, so we've got to give it to them. We can do that with Java." Sony is building server-side Java applications that manage the multimillion-page site. The media company also is installing Java Web servers that shoot information in dynamic pages from databases to users.

But Sony's popular game sites, with 60% growth in their audience and a total of 2.9 million users, will get the most attention. Sony is souping up its online *Jeopardy!* site, which has become one of the most popular games on the Internet. By midyear, the site is slated for an update that will turn it from a fairly static game into a dynamic, multiplayer experience in which players have animated representations and are able to see four or five different camera angles. That gives them views from around the "studio" depending on who is asking or answering questions.

The online version of the most popular game show in the world, *Wheel of Fortune*, will undergo a similar Java-based overhaul.

"We had to make the site Sony quality," said Bob Mason, a developer at Art Technology Group, Inc., a Java development house in Boston that is working on Sony's site. "We couldn't do that with HTML [Hypertext Markup Language] or dynamic HTML. We needed Java to make it dynamic."

But Mark Benenroff, vice president of programming and platform development at Sony Online, noted that working with a relatively new and immature technology such as Java has presented some obstacles.

"We definitely have skinned our knees, but we haven't broken anything yet," he said. Some of those skinned knees have been the result of poor memory management and garbage collection. Memory management and garbage collection functions give memory to applications as needed, then collect it when a function is complete. Inefficient management slows performance, even more so with a large, multiuser application.

"If you have a party with 10 people and each one drops a piece of paper, it's no big deal," Benenroff said. "But if you have 10 million people at your party, that is a big deal."

Tim Lindholm, senior staff engineer at Sun Microsystems, Inc.'s JavaSoft division, said a new version of the Java Development Kit, which is due next summer, offers much better garbage collection and memory management.

Benenroff said JavaSoft had better deliver on those promises. But for now, Java has advanced enough that he is willing to take his falls with it.

"I thought it would be fun to walk on the tightrope," Benenroff said. "A lot of other people at Sony weren't so nervous, but I knew what we were getting into — certainly a multimillion-dollar investment. And to gray hairs and worry, it's been at least another \$2 million." □



NEW PRODUCT

QUALCOMM, INC. has announced Eudora WorldMail Server 2.0, an Internet and intranet electronic-mail server.

According to the San Diego company, the server software has browser-based management tools and remote console capabilities. It is based on open Internet standard messaging, so users don't need gateways. A Group Account Manager lets managers add, modify or use and distribute lists from any Java-enabled browser. Check boxes for disabling accounts, setting future account expiration dates and specifying log-in restriction also are included.

A 10-mailbox system costs \$159. A 10-mailbox add-on pack is \$99.

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Briefs

SYSTEM BREACH

Computer security breaches increased 16% since last year, affecting 64% of 520 U.S. corporations, government agencies, financial institutions and universities. Losses totaled \$136 million for the 241 organizations that counted losses — up 36% from last year.

Source: Computer Security Institute, San Francisco

VPN boom looms

Corporation, Call-Around Communications Network Corp., recently told it will lease and manage security equipment used with its virtual private network service, rather than have customers buy and manage the equipment themselves. The Internet service provider will lease and manage VPNs. VNet Technologies, Inc., encryption devices for \$300 per month plus a \$400 installation charge. And Nupur Systems, Inc.'s Firewall is available for \$300 per month, plus a \$500 installation fee.

NT clustering

Vista Corp. in Orem, Utah, has released the Co-Standby Server for NT that provides fail-over clustering capabilities for Windows NT Server. It recognizes and redistributes NT servers in the event of network crashes. It costs \$9,999 until March 31; after that, it will cost \$4,999 for a server per. An evaluation copy is at www.vista.com.

3Com server cards

3Com Corp. is leader in the adapter card market, has shipped three cards to ensure maximum availability and uptime in servers. The adapter cards can reestablish faulty connections or be standby cards take over if a primary adapter fails. They cost \$99. 3Com also announced a card that provides fail-over capabilities between bandwidth for 3Com's. Another card lets users link Token Ring desktops to Fast Ethernet backbones in Fast Ethernet networks. It costs \$49.

Private-key nets unlock E-commerce

► Users build extranet-based key infrastructures

By Laura DiDio

WHILE A WIDE-SCALE public-key infrastructure is still in the planning stages, two leading edge users are moving quickly to build their own public key encryption networks to facilitate secure, cost-efficient Web-based transactions.

Public-key encryption, in which a document encoded using a private key can be decrypted only by the creator's public key, is crucial for a wide range of applications such as secure electronic mail, electronic data interchange and privileged Internet access.

• Simpler network monitoring

Net mapping app provides more help than user wants



Multiple groups at First Data Resources can now access NetViz maps and data that documents network connections

By Patrick Dryden

DESIGNING NETWORKS on napkins and keeping track of them in mainframe files and free-form drawing software didn't work for engineers at First Data Resources.

Like many other network cartographers, the information systems subsidiary of First Data Corp. needed a tool that would automate the process.

Such software combines com-

puter-aided drafting and database functions to help maintain an up-to-date map of network connections and devices.

Network designers solved that problem by adopting the namesake package from NetViz Corp. in Rockville, Md.

But that created another problem — control over a valuable resource. Other technical

Map app, page 50

The agency has deployed VeriSign, Inc.'s 128-bit public-key encryption and secure technology to secure statistical report transmissions between the Federal Reserve and about a dozen local banks in the New York area.

"The business case for public-key encryption is clear: It's

cheaper, more efficient, convenient, and our customers want it," Raines said.

Previously, the Federal Reserve got its statistical reports via encrypted faxes, which meant its users spent hours manually typing in the information. "Public key has automated

Private-key nets, page 50

Load balancing speeds heavily used intranets

By Bob Wallace

COMPANIES with high-volume commercial intranet sites are beginning to look at load balancing technology that will maintain performance levels as they add sites.

NationsBank Montgomery Securities is planning to use a load balancing system on its wide-area network to balance calls between World Wide Web servers at its San Francisco

headquarters and servers at a new facility in New York.

"We're adding a second site for redundancy purposes. Our system fault-tolerance requirements are very high," explained Christopher Branch, a senior network systems engineer at NationsBank. "That way, investors dialing in to access our equity-based research will be directed to the closest site. Or if one site is down, they'll be

Load, page 50



Shouttime/MTV's Peter Pollack: Disaster servers for fast response

Directory spec inches forward

► Standard would provide central administration

By Laura DiDio

A DIRECTORY SPECIFICATION that could cut costs and simplify

administration of complex networks if it becomes a standard has moved closer to reality.

Microsoft Corp. and Cisco Systems, Inc. have submitted a final draft specification for Directory-Enabled Networks (DEN).

When complete, DEN should allow developers to build directories that provide a single point

of administration for all network resources — including the internetworking devices now left out of the bulk of directory-based management and administration schemes.

Cisco and Microsoft launched the DEN initiative last September, pitching it as a standard way to integrate the management of servers, internetworking devices, applications and access control settings across various di-

Directory, page 52



Restaurant Consulting's Christopher Crocker: Remote access management isn't always reliable

Private-key networks aid E-commerce

CONTINUED FROM PAGE 49

the entire process. Everything is in digital format. There are direct links to our IBM mainframe database and there is less chance for error." Raines said. But deployment of public-key encryption among banks in the Second District is limited "to only the very largest banks," though usage will expand rapidly in the next year, he said.

Many banks use expensive link encryptions — which cost about \$5,000 each — to secure leased-line data transmissions. "With public-key encryption, everything is encrypted in software. There are no expensive add-ons to buy and maintain. And ultimately doing business over the Internet is far more cost effective and productive than setting up a private leased-line network," Raines said.

Another market segment in which public-key encryption is fast accelerating is online databases. The West Group, Inc. in Eagan, Minn., publishes more than 10,000 legal databases that serve 800,000 lawyers nationwide. It is rolling out a public-key encryption pilot network that will go live this summer.

"With public-key . . . there are no expensive add-ons to buy and maintain." — Paul Raines, Federal Reserve Bank

The case for security is especially compelling in the legal industry where lawyers and clients must have their communications kept confidential, said Ruven Schwartz, the West Group's project manager for authentication services.

Lawyers can browse the West Group's World Wide Web site and get a public key encryption certificate to communicate with their clients, who are issued a similar certificate.

The West Group uses public-key encryption to promote its West Legal Directory. "It will definitely improve the caliber of our directory. The more information we get, the better the directory is and the more information our customer can find online," Schwartz said. □

Snapshot

WHERE THE MONEY GOES

Which technologies consume the bulk of your security dollars?

	Now	In two years
Firewalls	87%	50%
Encryption	7%	43%
Digital certificates	3%	40%
Remote access security	17%	23%
Labor	13%	13%
Consulting and services	17%	10%
Awareness training	7%	10%

Base: 30 Fortune 1000 companies; multiple responses allowed

Source: Network Research, Inc., Cambridge, Mass.

Load balancers speed heavily used intranets

CONTINUED FROM PAGE 49

sent to the one that's up. And it'll all be transparent to our customers."

Vendors are rushing to deliver systems that will help users such as branch.

Seattle-based F5 Labs, Inc. and New York-based HydraWeb Technologies, Inc. last week announced load balancing systems that can spread calls to Web sites separated by long distances. Start-up ArrowPoint Communications, Inc. in Westford, Mass., will join the fray later this month.

DIRECTING TRAFFIC

A load balancer takes calls sent to a Web server that is busy or down and redirects them to an available server. It also balances server loads to boost performance and prevent any one server from being overburdened. So users can delay or avoid buying more servers as his counts climb.

Load balancers are available as software that runs on a common server or as a combined hardware/software package.

The software-only packages cost as little as a few thousand dollars.

A few users are reaping the benefits of WAN load balancers: networking giant Cisco Systems, Inc. and start-ups Bright Tiger Technologies in Acton, Mass., and Resonate, Inc. in Mountain View, Calif., for several months have been offering systems that serve far-flung Web servers. "Moving the 'contact' close to the customer is the

name of the game because it improves performance," said Ted Julian, an analyst at Forrester Research, Inc. in Cambridge, Mass. "The increase in the number of users on the 'net' and the length of time they stay connected [bursts] performance. Load balancers are a way to address that problem."

WAN load balancing systems let users disperse servers and let them work as one system.

"WAN load balancers let you locate Web servers closer to users, which produces faster response times," said Peter Pollack, chief technologist at Slownet/MTV Networks in New York. "That's very important, because with the Internet you have a geographically dispersed customer base." The Internet benefits from load balancing because traffic travels shorter distances, he said.

Mark Haverland, chief architect and engineering manager at Denver-based MapQuest, Inc., uses load balancers across the online map and travel company's WAN.

"We're getting more and more requests from our customers to add sites closer to them and for redundancy purposes," Haverland said. "We may end up setting up other sites and would want a WAN load balancer for [that effort]."

MapQuest uses an F5 Labs LAN system to apportion 6 million to 7 million hits per day across 15 to 20 Sun Microsystems, Inc. and Silicon Graphics, Inc. Web servers, he said. □

Map app provides too much help

CONTINUED FROM PAGE 49

groups wanted that documentation to help support connections with 1,400 customer networks that will handle more than 4 billion credit-card transactions this year.

"The requirements have changed," said Bill Howell, a network analyst at First Data Resources in Omaha. "Now we must figure out how to share this as a common tool for all IS groups." Analysts said the problem is becoming more common as management and monitoring tools begin to serve broader needs.

Howell said his design group used to sketch new networks and upgrades on "paper napkins or anything we could get our hands on." Then they tried Software Publishing Corp.'s Harvard Graphics software to depict network layouts for the installers, "but every diagram was different, and we couldn't track changes."

With NetViz, designers started to build a central storehouse of standard diagrams and information representing First Data's network and its links to customer networks, Howell said. "The problem was that it did more than we envisioned," he said, so its role expanded.

This visual database improved training, assisted with sales of network upgrades and proved easier to navigate than flatfile mainframe records that describe network devices and connections, said Howell and other IS managers.

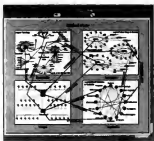
During a network outage, Ed Koch, telecommunications vice president at First Data Resources, directed engineers in the network operations center to call up NetViz diagrams to help with their diagnosis.

"I want the maintenance and troubleshooting groups want these diagrams to include real numbers and cabinet locations because they have to go out and fix these devices," Howell said.

A read-only viewer lets other groups access central diagrams, but only the design engineers

can modify them. Until others are trained and qualified to access NetViz fully, the design group must keep the repository updated as details trickle in. Purchasing information comes in after installation, for example, and circuits are identified after they are activated.

IS groups face similar problems figuring out how to share enterprise management suites, service-level monitors and other integrated tools that cut across the boundaries of their special-



With NetViz, designers can build a central storehouse of standard network diagrams and information

ists, said Sharon Fisher, a research director at Datapoint Information Services Group, Inc. in Delran, N.J. "Before adopting any tool, it helps to have a process in place for sharing both the information and the responsibility," Fisher said. □

NEW PRODUCT

VERITAS SOFTWARE CORP. has announced NetBackup for VMS, storage backup and recovery software for Digital Equipment Corp.'s VMS operating system.

According to the Mountain View, Calif., company, the software lets users perform backups of data on VMS clients and servers while using NetBackup's central management and master/slave capabilities.

Pricing starts at \$500. Veritas Software (650) 335-8000 www.veritas.com

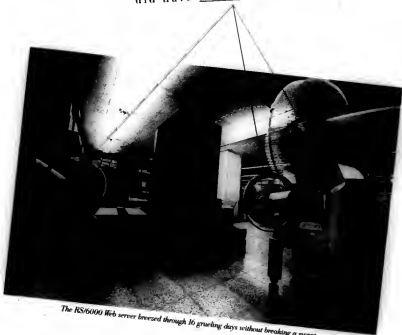
No medals.

No anthems.

No team jackets.

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Official Web site.

Okay, so the IBM RS/6000 Web server
did have a few fans.



The RS/6000 Web server lowered through 16 grueling days without breaking a sweat.

IBM's award-winning[®] UNIX[®] server, the RS/6000, flawlessly powered the Nagano Games Official Web site. And even set a record of its own: handling 103,429 hits in a single minute[†]. Recently named product of the year by *InfoWorld*[®], the RS/6000 has the speed, power and endurance that can help your business compete. Prices start at just \$5,900*, so come visit us at

www.ibm.com/rs6000/nagano



RS/6000[®] named number one Web server in InfoWorld July 1999. Record established on 2/25/98, establishing February 1998. Prices shown in IBM suggested retail price and represent base model configurations. Actual retail price may vary. The official Web site of the Nagano Games was built, run and hosted by IBM. IBM and RS/6000 are trademarks of International Business Machines Corporation in the U.S. and/or other countries. UNIX is a registered trademark in the U.S. and other countries. Copyright exclusively through T-Open Company Limited. © 1999 IBM Corp. All rights reserved.

Users seek more remote access

► Compaq offers Windows NT server support for branch office staff

By Matt Hamblen

NETWORK MANAGERS TRYING to keep up with a growing number of branch offices and telecommuters are looking for faster and cheaper ways to connect remote users to company networks.

At Ruppman Marketing Technologies, Inc. in Peoria, Ill., call center, sales and other personnel wanted faster connections to the company network for access to electronic mail, the Internet and other applications.

Network engineers considered bringing a T1 connection into an existing Rolan private branch exchange (PBX) switch. But buying a circuit card that would have cost \$45,000, said Richard Roberts, a network engineer.

Company officials then heard about a new Compaq Computer Corp. Remote Access Server (RAS) upgrade that would cost \$10,000 less than the PBX system for a T1 connection.

It also would let users reach the company network at Integrated Services Digital Network

speeds of at least 64K bit/sec. The company wants to enable remote users to connect even quicker using Asynchronous Digital Subscriber Line (ADSL) speeds of 1.5M bit/sec. or faster, once the technology becomes widely available.

"So far, ISDN's been an easier solution for home users, and we don't see ADSL for at least 12 to 18 months," Roberts said.

Compaq eventually will pro-

Compaq Remote Access Server 5601

Price: \$15,069

Features:

- One ISDN PRI-T1 port
- 24 digital K56flex modems
- Allows up to 96 ports



vide ADSL upgrades of its RAS 5601, which Ruppman is now testing, Roberts said.

Compaq is promoting Windows NT support as a prime

feature of its 5601, but Roberts said the NT functionality wasn't an attraction.

WORK REDUCTION

Ruppman is migrating its mix of OS/2 and NT servers to Novell, Inc. NetWare to cut down on the administrative chore of maintaining multiple operating systems.

The company chose a Compaq server because it was more compatible with an earlier Compaq ProLiant 800, which served as a remote access and file server.

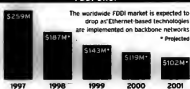
Still, Compaq views its Windows NT-based Remote Access Servers as a way to expand into the business market.

The 5601 will allow 96 ports and more than 900 simultaneous users. That makes it valuable to large companies trying to connect a corporate hub to a large branch office, analysts said.

"The remote access product market segment is among the fastest-growing areas of the technology sector," said Virginia Brooks, an analyst at Aberdeen Group, Inc. in Boston. □

Snapshot

FDDI DROP



Source: The Datacube Group, Portland, Maine, Oct.

HP tunes net platform for service management

By Patrick Dryden

HEWLETT-PACKARD CO. is rebuilding the network management foundation of OpenView to support new quality-of-service goals for its line of enterprise management software.

Network Node Manager (NNM) leads the \$46.4 million market for network management platforms with about one-third of users, industry analysts said. Now HP is stepping up integration efforts for all its OpenView tools to help information systems managers define and maintain service-level agreements with users.

That means NNM needs some new capabilities.

"All its services involve the network, so some basic availability and performance objectives must be met there," said Cristina Mahon, leader of HP's NNM development team. In the second half of this year, HP hopes to ship Version 6.0 of NNM with the following major enhancements:

■ **Build-in event-correlation services** to compare network configuration and alerts. Operators or other tools can then more quickly identify the root cause of problems.

■ **A standard compliant data warehouse** that will gather information about network topology, events and managed devices. Operators or other tools can then analyze aggregated data to detect trends and take action before problems develop.

■ **A built-in World Wide Web server** and a Java-based client that will let operators view net-

work maps and investigate alarms from any browser.

That's good news for NNM users already under the gun to meet service-level agreements.

"Service is our bread and butter. If users or customers can't get to a server, we're dead," said Michael Stollery, an advanced systems administrator at Electronic Data Systems Corp. in Plano, Texas.

Current tools let EDS operators react immediately to problems, he said.

But prevention is still difficult. "We're trying to look at what's occurred in [the] past that led to a failure so we can take steps [so] it won't happen again," Stollery said.

"That's why we're very interested in these upcoming NNM enhancements."

Most IS groups still need more education about service management issues before they can really apply HP's newly focused tools, said Rick Villars, director of network software research at International Data Corp. in Framingham, Mass.

"Not many organizations have adopted internal service-level agreements yet," he said.

HP's road map will "bring us closer" to defining business services represented by network system and application prices, said Sandra Porter, a telecommunications engineer at Air Products & Chemicals, Inc. in Allentown, Pa. But automating control over such services requires lots of new information and some new disciplines first, she said. "It's still the early days for a lot of people." □

Directory spec close to approval

CONTINUED FROM PAGE 42

rectory services databases including Microsoft's forthcoming Windows NT 3.5 Active Directory, Novell, Inc.'s Novell Directory Services (NDS) and Unix directory databases.

"In theory, DEN-compliant products will allow network administrators to not only centrally manage all aspects of their network but to customize management. They would be able to perform such functions as preferred network bandwidth for a particular network or group of super users or establish quality of service based on a specific set of parameters such as time of day," said Bob Sakakeeny, an analyst at Aberdeen Group, Inc., a Boston consultancy.

The initiative now heads for the Desktop Management Task Force, a standards body that oversees the development of industry-standard and interoperable management tools and utilities.

DEN also has the backing of about 300 other top networking vendors.

"The business case for the DEN initiative is simplified administration across the enterprise and potentially lower cost of ownership," Sakakeeny said. A final standard could be settled as quickly as the third quarter, clearing the way for products to ship by early next year, industry observers said.

BRING IT ON

Some users, such as Christopher Crocker, senior network engineer at Restaurant Consulting Services, Inc. in Danvers, Mass., said the standard can't happen soon enough for him.

"We could use this right now to manage our wide-area frame-relay network," Crocker said. Currently, Restaurant Consulting has six remote LANs. To monitor them, it uses remote access software packages, which

are themselves difficult and time-consuming to manage and "not always reliable," Crocker said.

A directory services database, such as NDS, currently lets administrators make moves, adds and changes to users, files and some network devices such as printers.

But there is no mechanism that integrates management of network applications and services with lower-level, "network plumbing"-type internetworking devices.

But other users, such as Phil Easter, technology strategist at Greyhound Lines, Inc. in Dallas, voiced skepticism.

"It's a nice concept, but at this point it's still another pipe dream that's 12 to 18 months away from being reality," he said. He said he already has many of those enterprise-wide management capabilities in NDS. □

LAN switches give users more bandwidth flexibility

By Bob Wallace

EXTREME NETWORKS, INC. and Xylan Corp. have designed new LAN switches to give users more flexibility in deciding where to add bandwidth in their networks.

The two companies unveiled versatile systems that can, for example, give low-requirement users 10M bit/sec. connections and high-demand servers 1G bit/sec. links — all using the same switch.

"What you're seeing is a shift away from single-function switching systems to switches that can accommodate the ever-increasing bandwidth needs of today's corporate data networks," said Daniel Breese, president of TeleChoice, Inc., a Verona, N.J., consultancy. "Users don't want to buy one box for each specific bandwidth requirement. It makes management a nightmare."

Gigabit Ethernet start-up Extreme Net-

works in Cupertino, Calif., announced the Summit4. It has 16 ports that can operate at 10M or 100M bit/sec. and six ports for 1G bit/sec. Gigabit Ethernet.

Users can match the bandwidth needs of their servers to the different port speeds. For example, a mix of Macintosh and PC servers can use the 10M bit/sec. ports, 100-MHz Pentium servers could use the 100M bit/sec. connections and higher-end servers could use the Gigabit Ethernet ports.

The Summit4 is shipping. Pricing starts at \$24,995. Xylan in Calabasas, Calif., announced switches with ports that can sense whether to operate at 10M or 100M bit/sec. The Xylan OmniStack 406f has 16 10/100M bit/sec. ports and costs \$130. The OmniStack 5024 has 24 10/100M bit/sec. "auto-sensing" ports and one or two Fast Ethernet, Gigabit Ethernet or Asynchronous Transfer Mode uplinks. It costs \$75,000. □

"Users don't want to buy one box for each specific bandwidth requirement. It makes management a nightmare." — Daniel Breese, TeleChoice

NEW PRODUCTS

ATTACHMATE CORP. has announced Remote LAN Node Version 5.0, software for providing remote access to host and LAN-based networks and applications.

According to the Bellevue, Wash., company, the software gives remote users protocol-transparent access to a Token Ring or Ethernet LAN through a dial-up connection, such as a modem, Integrated Services Digital Network (ISDN) or X.25 connection. New connectivity options include support for ISDN B-a protocols, support for multilink Point-to-Point Protocol and support for IP/PPX Windows 95 or Windows NT dial-out.

Pricing starts at \$2,130 for server software and a four-port license.

Attachmate
(435) 644-4010
www.attachmate.com

LANART CORP. has announced the EXC0015, a 10Base-T to 10Base-FL converter for twisted-pair-to-fiber-media connectivity.

According to the Needham, Mass., company, the converter facilitates data transmission regardless of cable cross-

ing requirements by identifying connected cables as either crossed or uncrossed and then matching its configuration accordingly.

The product costs \$249.

LANART
(617) 444-1994
www.lanart.com

APONEI, INC. has announced Bandwidth Manager Model 100 and Bandwidth Policy Monitor Model 100, devices for managing 100M bit/sec. Fast Ethernet networks.

According to the San Jose, Calif., company, Bandwidth Manager lets corporate intranet managers or Internet service providers allocate bandwidth by individual users who may have one or many IP addresses. Bandwidth Policy Monitor provides data on bandwidth usage patterns to help set policies that guarantee bandwidth for mission-critical applications.

Bandwidth Manager costs \$8,950; Bandwidth Policy Monitor costs \$6,950.

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Metro Careers

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Software

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Briefs

WAITING GAME

Manufacturing allies tussle toward adopting new technology

Large companies*



Small/midsize companies*



- Averse to technology
- Adopt when competitors benefit
- Adopt when technology matures
- Early adoption
- First to adopt leading-edge products

* Small and midsize manufacturers are defined as having annual revenue up to \$249 million. Large manufacturers have annual revenue of \$250 million or more.

Base: 199 IS and business managers at manufacturing firms. Source: Advanced Manufacturing Research, Inc., Boston.

Workfare for NT

Software Solutions, Inc. in Wilkes-Barre, Pa., is the second quarter place to release new software products and an upgrade of a Windows NT software. Software for Windows NT Version 3.5 has a new task manager that lets users learn, permits automated task processing into manual work hours. The company also will roll out the Windows Connector for the World Wide Web and Workfare Connector for Microsoft Corp.'s Exchange, which lets users of the Web and Exchange managing server participate in work areas. Pricing information wasn't available.

Insurance company claims object gain

Technology helps Travelers keep prices down

By Craig Stedman

TRAVELERS PROPERTY Casualty Corp. likes to think of itself as the Cadillac of workers' compensation insurance. But it ran into a problem: Customers stopped wanting to pay Cadillac-like prices.

"I need to keep my price flat or reduce it just to stay even [with the competition]," said Vincent Armentano, sec. and vice president of workers' compensation claims at the Hartford, Conn.-based unit of The Travelers Group. That pressure forced the \$9.9 billion company to learn how to make its high levels of service less costly to maintain.

So it turned to technology. To boost claims-handling productivity, Travelers Property Casual-

ty relies on a combination of object-based applications and more than 100 database servers distributed throughout its offices.

In the past four years, the company has implemented new applications for handling claims for workers' compensation and personal and commercial property losses.

And last fall, the company used the object approach to

tie workers' compensation claims to medical management services that are aimed at getting injured employees back to work faster and at less cost.

The combined system, which links the homegrown claims application with packaged medical case management software, is aimed at "using technology to set us apart" from rival insur-



ers, said Doug LaBoda, chief information officer at Travelers Property Casualty's claims service unit.

The company's 3,800 workers' compensation claims handlers and 500 nurse case man-

Travelers, page 56

APP DESIGN

Bank system turns into service edge

By Sharon Gaudin

THE CHALLENGE facing the Banque Generale Luxembourg: overcoming competition from banks across a unified European community.

The bank's goal? Get so close to information affecting consumers and their banking histories that service representatives can answer their needs in one keystroke.

Information systems managers at the \$25 billion bank in Luxembourg are trying to do that with a new object-oriented application development architecture.

ALL-IN-ONE

Managers are using the technology to gather all of a customer's information — savings, checking, investments, securities — in one file so bank advisors have it all at their fingertips without having to make multiple and lengthy queries to various databases.

Bank officials want customer service staff to dispense personalized advice in moments in-

Bank, page 56

Mortgage company sold on imaging

GMAC finds that threaded discussions ease document management

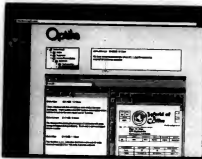
By Barb Cole-Gomelski

ALTHOUGH IT had installed an imaging system to speed up mortgage applications, GMAC Commercial Mortgage in Hockessin, Pa., hit a big pothole when it came time to pull the home inspections done by outside contractors into its system.

The contractors have no direct access to GMAC's network, so inspection documents and paperwork — such as the back-and-forth between loan officers and inspectors — all had to be generated manually, said Tom Reynolds, senior network engineer at GMAC.

GMAC needed to be able to scan in business documents from its contractors via the universal interface of the World Wide Web — which is where new software from Optika Imaging Systems in Colorado Springs entered the picture.

Optika's EMedia software



Optika's EMedia uses a middleware layer to collect documents from various storage areas

culled documents stored in imaging systems, legacy applications and Web servers and makes them available from a single client. That eliminates the need for multiple desktop applications. The culling is

done by a middleware layer that processes end-user queries for information.

The software also supports threaded discussions, so GMAC users, customers and trading

Mortgage, page 56

Software

Database • Development • Operating Systems

Briefs

WAITING GAME

Manufacturing attitudes toward adopting new technology

Large companies*



Small/midsize companies*



- Adverse to technology
- Adopt when competitors benefit
- Adopt when technology matures
- Early adoption
- First to adopt leading-edge products

* Small and midsize manufacturers are defined as having annual revenue up to \$249 million. Large manufacturers have annual revenue of \$250 million or more.

Based: 1997 IS and business managers at manufacturing firms
Source: Bureau of Manufacturing Research, Inc.

Workflow for NT

Eastman Software, Inc., in Billerica, Mass., in the second quarter plans to release two workflow products and an upgrade of a workflow product for Windows NT. Eastman Software for Windows NT Version 3.2 has a new task manager that lets users incorporate automated task procedures into routine work items. The company also will roll out Workflow Connector for the World Wide Web and Workflow Connector for Microsoft Corp.'s Exchange, which lets users of the Web and Exchange messaging servers participate in workflows. Pricing information wasn't available.

Insurance company claims object gain

Technology helps Travelers keep prices down

By Craig Stashman

TRAVELERS PROPERTY Casualty Corp. likes to think of itself as the Cadillac of workers' compensation insurance. But it ran into a problem: Customers stopped wanting to pay Cadillac-like prices.

"I need to keep my price flat or reduce it just to stay even [with the competition]," said Vincent Armentano, senior vice president of workers' compensation claims at the Hartford, Conn.-based unit of The Travelers Group. That pressure forced the \$9.9 billion company to learn how to make its high levels of service less costly to maintain.

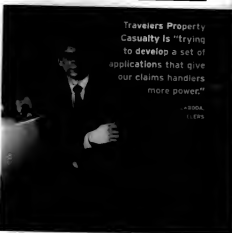
So it turned to technology. To boost claims-handling productivity, Travelers Property Casualty

relied on a combination of object-based applications and more than 100 database servers distributed throughout its offices.

In the past four years, the company has implemented new applications for handling claims for workers' compensation and personal and commercial property losses.

And last fall, the company used the object approach to tie workers' compensation services that are aimed at justifying injured employees back to work faster and at less cost.

The combined system, which links the homegrown claims application with packaged medical case management software, is aimed at "using technology to set us apart" from rival insurers.



Travelers Property Casualty is "trying to develop a set of applications that give our claims handlers more power."

—BRIAN L. ERS

APP DESIGN

Bank system turns into service edge

By Sharon Gadsden

THE CHALLENGE facing the Banque Generale Luxembourg, encompassing competition from banks across a unified European community,

The bank's goal? Get so close to information affecting consumers and their banking instincts that service representatives can answer their needs in one keystroke.

Information systems managers at the \$45 billion bank in Luxembourg are trying to do that with a new object-oriented application development architecture.

ALL-IN-ONE

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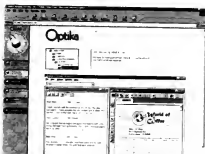
By Barb Cole-Gonzalez

ALTHOUGH it had installed an imaging system to speed up mortgage applications, GMAC Commercial Mortgage in Haddonfield, Pa., hit a big pothole when it came time to pull the home inspections done by outside contractors into its system.

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The software also supports threaded discussions, so GMAC users, customers and trading

Mortgage, page 56

Travelers keeps prices down

CONTINUED FROM PAGE 35

agers can exchange data in almost real-time fashion, Armentano said. They now also sit side-by-side and have common financial incentives designed to foster teamwork.

Getting nurses involved from

The company's 2,800 claims handlers and 500 nurse case managers can exchange data in almost real-time fashion.

- Vincent Armentano, Travelers Property Casualty

the start in scheduling doctors' appointments for injured workers and tracking their cases is expected to save money for Travelers and its customers.

Pilot installations at two companies led to an annual to 1% reduction in claim payments and a 16% drop in the average time inquiries kept workers away from

their jobs, Armentano said.

Travelers Property Casualty hasn't been quick to bet on other new technologies, said Jeanne Ross, a research scientist at the Massachusetts Institute of Technology in Cambridge.

Mass., who has written case studies about the company. For example, the company hasn't done much yet with either imaging or the Internet.

But Travelers recognized objects as a technology border that was worth riding, Ross said. LaBoda and his staff are adept at "understanding technology and being able to think about it in business terms," she said. "They're very business-driven."

LaBoda said the company has spent more than \$27 million on the C++-based applications, including the cost of hardware and databases. But benefits include a 15% cut in the cost of handling personal insurance

claims, largely because of reduced personnel needs. And software development costs shouldered directly by the claims unit have gone from \$7 million on the initial workers' compensation application to \$1.5 million and \$500,000 on the systems for personal lines and commercial property. LaBoda said.

ROCKY RIDE

The object ride was rough early on, when the workers' compensation software was put into use even though it was barely beyond beta-test quality. One out of eight end-user PCs crashed on a daily basis at first, LaBoda said. Now Travelers expects to finish rolling out the object-based applications to its 6,500 claims handlers by December. Simultaneously, it is moving the software from OS/2 to Windows NT and switching from Sybase, Inc. databases to Microsoft Corp.'s SQL Server. □

Object-based bank system offers a service advantage

CONTINUED FROM PAGE 55

stead of days.

"Our customers want immediate feedback," said Yves Stein, head of marketing function at Banque Generale Luxembourg. "They want to know not only that their advisor knows their needs but sees their whole financial profile. And they don't want to hear us tell them that we'll get back to them in a few days. Speed performance is a critical issue."

UNIVERSAL ACCESS

The bank has been working on building an object-oriented three-tier architecture based in the Common Object Request Broker Architecture (CORBA) and Java. CORBA will act as an electronic bus that delivers information between end users' clients and the bank's databases. CORBA and Java both will let the bank's customer service advisors access information on any kind of database.

Business logic applications will sit on the Gemstone Systems, Inc.'s J Application Server, which lets thousands of users access those shared objects at the same time. That piece was designed to save users considerable time because they don't have to wait in line for an object or for a specific virtual machine to fire up.

An architecture is the plumbing that connects applications from the front end seen by users through the middle-tier application server and out to the company's databases.

It also embeds a lot of the guts of programming — transaction calls and communication functions — reducing the amount of programming needed for new applications and leaving application developers only business logic to be focused on.

An object-oriented architecture lets developers store and

AT A GLANCE

Company: Banque Generale Luxembourg, Luxembourg

Total consolidated assets: \$29.8B (U.S.)

1997 assets: 11.6% increase from 1996

Project: The bank is building a Java-based component architecture. The project was started last year and will have a pilot release next month.

reuse objects that they built for previous applications, saving the time it would have taken to rewrite that code.

Michel Dauphin, head of information technology architecture at the bank, said reusing objects should continue to save his staffers time and enable them to respond quickly to new business challenges.

"Previously, a typical development period was six months to two years, and we had no flexibility in adapting to new banking needs," he said.

Dauphin has been switching his old Cobol and mainframe system to the new three-tier architecture that has Windows NT running on clients through the main office and go branch offices. It runs Java applications on the front end and on the server, but maintains the mainframe and 20-year-old Cobol applications on the back end.

Karen Bochner, an analyst at The Standish Group International, Inc. in Dennis, Mass., said banks in competitive markets need to think ahead. "To sell stock information and securities [for example], they need to know what the customer is doing and what they want to do," she said. □

Mortgage company

CONTINUED FROM PAGE 55

partners can comment on the status of an order, ask questions or make requests.

Reynolds said EMedia should reduce paper flow and speed up the processing of mortgage applications. Internally, dealing with one desktop client will mean lower administration costs, he said.

Amie White, an analyst at International Data Group in Framingham, Mass., said EMedia is unique because it "captures not only the electronic paperwork, but also the human interactions that until now have slipped through the cracks of e-commerce software."

Companies could use a collaboration platform such as Lotus Development Corp. Notes to build an EMedia-like system,

but that would require a lot of custom programming.

Gerry Murray, another IDC analyst, said none of Optika's traditional imaging rivals has products that do exactly what EMedia does, though some have pieces of it.

ACCESS ADVANTAGE

For another EMedia use, access to multiple repositories from a single application was the most appealing benefit.

Information systems managers at Payless Cashways, Inc. in Kansas City, Mo., previously had to write customized applications to give accounts-receivable clerks access to the company's imaging system.

The clerks also had to identify which repository they wanted to

work with, said Tim Thomas, manager of infrastructure at Payless Cashways. The company runs more than 160 lumber stores. "With EMedia, I won't have to program a custom front end for someone who needs access," Thomas said. And users will be able to request information without specifying, or even knowing, which system it is stored in.

EMedia can be accessed from the front-end applications of operational systems such as those from SAP AG, Redwood Shores, Calif.-based Oracle Corp. and PeopleSoft, Inc. in Pleasanton, Calif.

The software also can be run from a Web browser or Microsoft Corp.'s Internet Explorer. There also is a server component that sits between the repositories and the clients.

EMedia will ship to the second quarter and will cost \$150 per user. □

APPLICATION DESIGN

NEW PRODUCTS

SEAGATE TECHNOLOGY, INC. has announced Backup Exec Small Business Server Suite for Windows NT, software for data backup, restoration, disaster recovery and virus protection. According to the Scots Valley, Calif., company, the suite

works with Microsoft Corp.'s Backup Exec Small Business Server to protect Microsoft SQL Server, Microsoft Exchange Server and Microsoft Internet Information Server data. The product costs \$695.

Seagate Technology
(408) 429-6336
www.seagate.com

FUNK SOFTWARE, INC. has announced AppMeter II, a software metering tool to monitor application use and enforce

concurrent-use license agreements.

According to the Cambridge, Mass., company, the tool monitors and documents usage of Windows NT, Windows 95, Windows 3.1 and DOS applications installed on

Windows NT or Novell, Inc. NetWare file servers and workstation hard drives.

The tool costs \$695 for a single server/25-user license. **Funk Software**
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FILE 1



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WHERE THE FUTURE'S BORN®

Shipper changes course for SAP R/3

By Clare Haney
HONG KONG

COMPANIES OFTEN ACQUIRE software packages and adapt them to meet company needs. But once in a while a company finds itself changing its business

processes to conform to a software package.

That is what happened to Orient Overseas Container Line Ltd. The shipping firm, when prompted by a companywide decree to move from mainframes to client/server computing, acquired R/3

financials modules from Germany's SAP AG.

The Hong Kong-based company, a subsidiary of the public Orient Overseas International Ltd., is one of the world's leading global container transportation companies. It has 144 offices in more

than 45 countries. The shipping giant owns and charters about 34 container vessels deployed in 21 liner services carrying more than 1 million containers worldwide every year.

Orient Overseas Container embarked on its quest for a client/server-based financials package in 1994 and eventually narrowed its choice to SAP and PeopleSoft, Inc. in Pleasanton, Calif.

Paul Mok, general manager for finance and accounts, said SAP met the shipping company's requirements for handling its international customers. Customers can choose a particular currency for payment; the country in which they want to pay the bill; and which party will pay — the shipper or the consignee, Mok said.

Mok said, contrary to his expectations, the company found that the shipping industry doesn't have unique accounting requirements and that SAP took this into account. "We said to ourselves, 'Let's change our requirements to suit SAP modules,'" he said.

OPEN TO CHANGE

Adapting the shipper's existing processes to suit the standard accounting modules of SAP wasn't such a struggle because the company already had an inclination toward change, Mok said. "At that time, our accounting function here in Hong Kong employed more than 100 [staffers]. With process re-engineering, the head count was reduced to 70," he said.

The most difficult part of the global implementation of the R/3 financials modules wasn't the rollout, but the design phase that preceded it. Mok said, "Rollout is more or less the mechanical part of the whole process," he said. During the design phase, the company invited representatives from its offices in North America and Europe to Hong Kong to participate.

Orient Overseas Container also brought in Price Waterhouse LLP in Hong Kong as project consultants and used the consultancy's project management methodology to document the design process.

All the implementations of the R/3 financial modules were started in Hong Kong. Then the company operated on country by country and module by module as it rolled out R/3 financials across its overseas offices.

Orient Overseas Container now has R/3 financial modules installed on Hewlett-Packard Co.'s HP 9000 servers running HP-UX. Although the company didn't buy the hardware or operating system specifically to run R/3, it did change its database engine from Sybase, Inc. to Oracle Corp. to run R/3. At the time, Sybase's relational database lacked a feature known as row-level locking needed for optimal running of R/3 applications.

The project went live with R/3 in January 1997 and is running Version 3.0 E of the modules. The company employs about 280 accountants worldwide, all of whom report to its Hong Kong base. □

Haney writes for the IDG News Service in Hong Kong.

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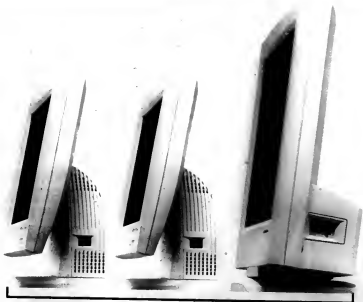
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Servers & PCs

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Briefs

Palin PC at the helm

The Palin PC, the first version of Scan Corp.'s Palenline personal digital assistant, will be released next month. Officials at Palin Computing, Inc., a division of Santa Clara, Calif.-based iScan, announced last week that the Palin PC supports all run a new operating system and will cost \$299.

Palin PC will be able to share information and communicate with other company officials via the Palenline PC. It also has a built-in Web browser to allow users to view the company's Web site. The Palin PC will also be able to share information with other company officials via the Palenline PC. It also has a built-in Web browser to allow users to view the company's Web site.

PC videoconferencing

Intel Corp. is releasing Intel Video Conferencing System 3.0, a PC-based videoconferencing system that improves video quality over earlier versions. The upgrade also includes new remote control software that lets remote users move in an equivalent.

The package includes a Pentium III processor, videoconferencing software, a LAN adapter, a speaker phone, a wireless keyboard and mouse, and a camera. Intel Video Conferencing System 3.0 costs \$9,999. A 30-day trial version can be ordered for \$9,999.

Small Company servers

CompuServer Computer Corp. last week took aim at small businesses with the release of new Pentium-based Aranda multiprocessor servers. The Aranda 860 line, priced from \$6,999 to \$9,999, is the company's third line of small-business products introduced since October.

Topping the price list is the Aranda 1200C, company officials said. It features a mid-level Pentium III processor, a 40-GB hard drive, a Universal Serial Bus port and a 17.3-in. color flat-panel monitor display.

Fundamental fail-over

► As client/server matures, users want critical apps backup

By Nancy Dillon

WHEN MARK SHOGER turned on his pager recently and noticed an alert from hours earlier saying that one of his Windows NT servers had failed, he couldn't believe it. He hadn't received any messages from panicked users unable to access data.

"I figured it had to be a mistake," said the network administrator at consulting firm Keane Federal Systems, Inc. in Rockville, Md.

DOWN ON DOWNTIME

In a survey of 700 IT managers during the 12 months between the summer of 1996 and summer of 1997:

- 43% experienced more than five incidents of unplanned downtime
- 27% reported single incidents with durations of between two and five hours
- 36% had incidents that lasted more than five hours

Source: Forrester Research

But sure enough, when Shoger checked, his primary domain controller server was down. Luckily, he had been beta-testing new storage replication software that had detected the server failure and initiated a fail-over to a backup system.

"The fail-over just stepped in instantly, and so we even noticed," Shoger said. He has since installed ARCserve Replication software from Islandia, N.Y.-based Computer Associates International, Inc. on each of his five NT servers. All of the servers fail-over to one dedicated secondary server with a 60-GB hard drive.

POTENTIAL LOSS

Shoger estimated that with-out the fail-over software, the downtime server could have cost tens of thousands of dollars in lost work time. "We had 60 application developers who would have been unable to work during the eight hours we would have needed to fix, reload and restore the server," he said.

ARCserve Replication uses file replication to synchronize selected drives between primary NT servers that need protecting and secondary NT servers that act as backup. If a primary server fails, the software transfers access to the protected file sys-

Storage, page 52

Slicing PC support costs

► CyberMedia app allows remote control



By April Jacobs

OFFICIALS at the National Institutes for Health (NIH) have found that PC management software is the best medicine to reduce support costs.

With offices spread across the country and many remote users, the NIH needs to be able to repair PCs from a home office and avoid costly help-desk house calls.

"Because we have users who are spread out in remote offices, being able to troubleshoot from a central location and restore their desktops from a server is important," said Tim Barnes, manager of information systems at the NIH in Atlanta.

Barnes said configurations stored on servers can be loaded onto a user's desktop to restore a PC to working order in seconds, which is much simpler than reloading software on a client.

Barnes said remote control also makes it easier to update software by eliminating the need to go to a user's desktop.

The NIH has turned to the latest version of Repair Engine from Santa Monica, Calif.-based CyberMedia, Inc. The software has cut support calls in half and eased remote troubleshooting.

The new version of the server-based application, dubbed CyberMedia, page 52

PARALLEL SYSPLEX

IBM alters licensing discounts

By Jaikumar Vijayan

IT IS TO BE LOSE IT.

That's IBM's message to customers who are taking advantage of special software discounts on Parallel Sysplex mainframe clustering architecture but haven't fully installed the technology yet.

In a move aimed at clarifying its requirements for Parallel Sysplex charges, customers must show they are using the technology if they want to keep getting rebates. In the past, mere intent to deploy a Parallel Sysplex in their data center qualified customers for discounts on related software for

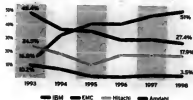
IBM's new criteria for aggregated Parallel Sysplex pricing:

- All processors in the Parallel Sysplex must be physically attached to a common coupling facility
- At least one application function must run across all systems in a Parallel Sysplex cluster

IBM, page 62

Snapshots

Worldwide market for end user shipments of mainframe disk arrays



Source: International Data Corp., Framingham, Mass.

CyberMedia app reduces support costs

CONTINUED FROM PAGE 61

Repair Engine for Workgroups, will be released this week. It allows up to 250 users per server compared with 50 users with the older version. And its World Wide Web-based interface makes it easy for network managers to replicate remote users' desktops, Barnes said.

Other features include integration with higher-level system and network management products such as Hewlett-Packard Co.'s OpenView. Integration is also possible with auto-repair applications from Mountain View, Calif.-based Remedy Corp. for problems such as missing files. Windows crashes and operating system conflicts.

Paul Jaffe, IS manager at Los

Angeles advertising marketing company AdLink, said the business value in PC management software such as Repair Engine is its ability to reduce support costs that run higher than PC hardware expenses.

SAVINGS STUDIED

Meta Group, Inc. in Stamford, Conn., estimated that users who deploy desktop management software, coupled with best practices, can save up to 26% on their overall desktop costs compared with an unmanaged environment.

Gartner Group, Inc. also in Stamford, said PC management practices can trim an estimated 25% off average PC costs. Gar-

New features in CyberMedia's Repair Engine 1.1:

- Scales up to 250 users per workgroup server
- Enhanced security for remote troubleshooting sessions
- Client software supports Windows 3.1, Windows 95 and Windows NT

ner has estimated that companies spend \$39,000 to maintain and support a PC over a three-year life span.

Good management practices include server-based administration, which reduces house calls and simplifies support, and server-based software updates. Users also can implement tools such as Microsoft Corp.'s Zero Administration, which is an add-on tool kit for

Windows NT 4.0 and Windows 95. The tool kit allows remote wake-up of machines for central support and software upgrading, for example.

Pricing for Repair Engine licenses is server-based, with costs ranging from \$2,375 to \$21,000. Repair Engine requires Windows NT 4.0 on the server. It supports Windows 3.1 and Windows 95 as well as NT Workstation clients. □

IBM alters licensing discounts

CONTINUED FROM PAGE 61

their MVS-based mainframes.

Intents to use Parallel Sysplex no longer qualifies users for the discounts, which can knock \$39,000 to \$1 million off a company's software licensing costs on multiple mainframes, according to Carl Greiner, an analyst at Meta Group, Inc. in Boston.

Parallel Sysplex allows users to bind mainframes together. Advantages include near-continuous availability, better use of resources, data sharing and the flexibility of less expensive incremental upgrades.

ONE LUMP SUM

But instead of assessing software charges on a per-mainframe basis, IBM's Parallel Sysplex Licensing Charge allows users to claim a discount on the aggregated whole. For instance, a company with three mainframes would ordinarily pay to use the software on each mainframe. But under the old pricing scheme, the company would have been eligible for the aggregate pricing if it planned to implement Parallel Sysplex.

"This is a good thing IBM is doing," said Dan Kaberson, Parallel Sysplex manager at Hewitt Associates, Inc., a human resources outsourcing company in Lincolnshire, Ill.

The tighter requirements mean users who were taking advantage of the pricing scheme without really implementing Parallel Sysplex will be forced to spend things up, he said.

The idea was to lure users to the new technology, Kaberson said. "To those who were juggling they would use it just to get the discounts, IBM is saying, 'We are finding things.'"

Although IBM hasn't specified a deadline, users probably have a grace period of six to nine months, Greiner said. "IBM believes that Sysplex has a demonstrated value, and they expect users to start using it if they want to take advantage of the special pricing," said John Young, an analyst at The Clippier Group, Inc. in Wellesley, Mass.

Young said users must develop a Parallel Sysplex migration strategy by midyear or increase their software budgets to reflect full prices. □

Storage replication software essential

CONTINUED FROM PAGE 61

term to the secondary server. Once the problem is fixed, the data is returned to the primary server and automatic fail-over protection resumes.

ARCserve - Replication for Windows NT was announced March 3 and costs \$2,995 for each primary server license.

Ventura Software Corp. in Mountain View, Calif., announced similar fail-over software, called Storage Replicator for File Systems, the same day. The Storage Replicator differs in that it uses a peer-to-peer architecture, rather than a master/slave architecture. That

means all servers share the same file system and show the same data at all times. Pricing starts at \$10,000 for servers running Sun Microsystems, Inc.'s Solaris operating system.

INCREASED DEMAND

Analysts said as clients/server systems mature and become more mission-critical, users want the kinds of reliability tools and applications that they have enjoyed in the mainframe world. Replication and fail-over help provide that.

"Replication is for businesses

that can no longer rely on simple rebuilding server systems from previous backups, which are typically 12 or 24 hours old or whose basic operations are seriously affected by downtime," said Bob Abraham, an analyst at Freeman Associates in Santa Barbara, Calif.

Bradley Bishop, a LAN administrator at consumer and mortgage lending firm United Companies Financial Corp. in Baton Rouge, La., works at such a business. He manages 75 Windows NT servers that control all of the company's online financial transactions.

"In our environment, we experience about 100 hours of unplanned downtime each year," Bishop said. He estimated that with downtime affecting 2,000 users, his company spends about \$2.5 million on lost production time annually. He uses ARCserve backup software and plans to implement the replication software soon.

Other server-based storage mirroring and fail-over software include OctopusHA+ from Qualio Group, Inc. in San Mateo, Calif., and Standby Server from Vincz Corp. in Orem, Utah. □

NEW PRODUCTS

TATUNG SCIENCE & TECHNOLOGY, INC. has announced the Composition 010-300, a SPARC-based workstation for engineering, medical and animation industry users.

According to the Milpitas, Calif., company, the system features the new 300-MHz UltraSPARCII Peripheral Component Interconnect (PCI) processor from Sun Microsystems, Inc. Standard configurations include Sun's Solaris 2.6 operating system, 512K bytes of external cache, 64M to 1GB byte of memory, a 4-GB-byte hard drive and a PCI graphics card.

Pricing starts at \$4,995, not

including a monitor.

Tatung Science & Technology
(800) 669-9900
www.tssti.com

ACER AMERICA CORP. has announced four notebook PCs in its Extensa 3900 family: 393T, 394T and 395T.

The San Jose, Calif., company said the notebooks have 12.1-in. Super VGA screens and 30-speed CD-ROM drives. The 393T and the 394T feature 166-MHz Pentium processors and 2-GB-byte hard drives. The 395T has 16M bytes of memory, and the 394T has 32M bytes. The 394T has a 200-MHz Pentium, 32M

bytes of memory and a 3.2-GB-byte hard drive. The 395T has a 333-MHz Pentium, 32M bytes of memory and a 3.2-GB-byte hard drive.

The 393T, 394T, 394T and 395T cost \$1,499, \$1,999, \$2,499 and \$2,699, respectively.

Acer America
(408) 432-6300
www.acer.com

CREATIVE LABS, INC. has announced the VideoBlaster WebCam II, a digital video camera for the desktop.

According to officials at the Milpitas, Calif., company, the compact color camera plugs in

to a PC printer port and comes with a one-piece headset and microphone.

It includes Windows 95 support and can capture video clips for use on World Wide Web sites, in presentations or in video electronic-mail messages.

It also comes with a software-based PC Internet telephone that lets users conference with other users for the price of a local Internet connection.

VideoBlaster WebCam II costs \$50.

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Managing

would

Ethical issues are never far below the surface in IS. How would you — or your staff — handle these four situations?

By Rick Saia

TAFFING. Re-engineering. Software upgrades. Strategic planning. Ethics.

Ethics?

Ethical issues rarely pop up on meeting agendas and in hallway conversations, but they're always present in information systems.

"All bona fide IS managers wrestle with it," says Maarten van Swaay, professor emeritus of computing and information sciences at Kansas State University in Manhattan, Kan. "But many IS people get swamped with the fires they have to douse and don't have time" to wrestle with ethics.

We asked two top-level IS managers — Charles W. Lacefield and Linda L. F. Reino — to tell us what they would do if faced with the ethical problems presented in four hypothetical scenarios. The questions and answers might help you and your staff start thinking about the ethical dilemmas IS people face day-to-day.

The questions were developed by Computerworld's Allan E. Alter, Mitch Betts and Rick Saia, along with H. Jeff Smith, associate professor of IS at Georgetown University in Washington.



Charles W. Lacefield, president and executive director for business processes and IT at Dow Corning Corp. in Midland, Mich.

ETHICAL DILEMMAS

1 A new system that bills corporate clients is under development, and there is a discussion over how much to invest in error checking and control. One option would add about 40% to the overall cost but would vastly improve the quality of the data in the resulting database.

If you go the other way, you run the risk of overcharging some midsize clients. Would you invest the additional 40%? What factors would you consider?

REINO: It would be important to consider the option that provides the most accurate data. Not only for the customers involved, but also for the usage of the data internally. Customers deserve to be billed correctly. I spend a fair amount of time verifying the accuracy of the larger bills I receive. It is only value-added time in that I often find errors or charges worth questioning.

Additionally, it would become more and more difficult to obtain correct profitability information if improper billing information was being used.

LACEFIELD: One of the ultimate goals of any enterprise should be maintaining an error-free billing system. This performance standard needs to be managed cost-effectively to avert the challenging competitive environment. In this case, investment in an upgrade that costs 40% more should not be made without further identification of the causes for the errors. Such analysis may well lead to the identification of a more cost-effective system that will enable error-free billing.

Managing

would

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ETHICAL DILEMMAS

By Rick Saia

Software re-engineering, database upgrades, strategic planning, and ethics. These issues rarely pop up on meeting agendas and in hallway conversations, but they are always present in information systems. Managers wrestle with them every day. As written van Swaay, professor emeritus of computing and information sciences at Kansas State University in Manhattan, Kan. "But many IS people get swamped with the fires they have to douse and don't have time" to wrestle with ethics.

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Linda L. E. Reino,
chief information
officer at Univer-
sal Health Ser-
vices in King of
Prussia, Pa.



Charles W. Lacefield,
vice president and
executive director
for business
processes and IT at
Dow Corning Corp. in
Midland, Mich.



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do?

AND ETHICAL DECISIONS

2 Charlie is more than your boss. He's the one who recommended you for your fast-track new job. You regularly have lunch with him and even golf together. Then, over drinks one day, while talking about the pending desktop upgrade, he lets it slip that XYZ Computer donated \$1,000 to "my favorite charity." Charlie asks you to forget about it.

Two weeks later, you learn that XYZ has the contract wrapped up, even though ABC Computer's bid is lower and your company has had reliability problems with XYZ's products in the past. Would you blow the whistle on Charlie? Why?

REINO: This situation has to be discussed with Charlie prior to just blowing the whistle on him. You need to discuss with him your thoughts and concerns and offer him a chance to respond. The end result is probably the same — you need to identify to someone that improper practices occurred. You probably owe it to someone that you have a relationship with to discuss it with them, if possible, first. Maybe they might take up the offer to report it themselves.

LACEFIELD: An initial approach would be to discuss the bid with Charlie to understand why ABC was not awarded the upgrade package. It might be that cost is only part of the total bid package in addition to other terms and conditions, annual maintenance fees, or specific product quality requirements that ABC did not fully meet.

Also, it might be advisable to talk further with Charlie about the \$1,000 contribution, including the supposition that it has the appearance of being a facilitative payment. Acceptance of such a payment is not good business ethics and should be recognized as unacceptable behavior.

3 George is an important ally of your IS department. He's gone to bat for you before the CEO on important IS projects, such as that big sales automation package, and has valiantly assisted in implementing some packages within his group. In fact, you probably be working elsewhere if it weren't for George. But you've just found out that George has downloaded and is using an unlicensed Lotus Development Corp. office software suite on his desktop, while the rest of the company is standardized with Microsoft Corp.'s Office. You've asked him to buy a licensed copy, but he refuses. What do you do?

REINO: Write up the order and get it purchased for him. It's pretty simple; it doesn't make sense for many reasons to use unlicensed versions. There should be a clear policy on this to back up your actions.

LACEFIELD: I would directly discuss with the employee that software utilized by an employee on behalf of the company must be licensed when required, otherwise the company is liable for misuse. Also, the employee should be informed of the benefits of adhering to software standards and the expectation that employees will abide by them. If the situation persists, I'd recommend an audit of software installed on company workstations as a further step leading to the removal of the unlicensed software. When standards are routinely enforced, violation of them could lead to disciplinary action.

4 What would you do if you found out your company was keeping a second set of accounting books on another computer?

REINO: Identify to the appropriate senior executives that the situation exists.

LACEFIELD: The initial step should be to understand why two sets of accounting books are maintained. The second set could support an appropriate business requirement, such as part of a business interruption contingency plan. Beyond understanding the reason for maintaining two sets of books, it then is important to know if the database and accounting principles applied are the same. The next course of action would be to discuss the findings with the chief financial officer, possibly suggesting an audit be conducted.

Sala is Computerworld's associate editor. Managing.

Why IS people care

Jeff Smith detects a growing concern over IS and ethics just by checking his electronic mail and answering the phone.

The associate professor of IS at Georgetown University says he's getting more inquiries from IS professionals seeking advice on ethical matters.

Smith says the top issues raised — in about 40% of the inquiries — involve access to data. For example, an IS professional is bothered that someone who shouldn't be able to see information can. Two secondary issues: intellectual property ("I developed an application on the job, and I want to take a job with a competitor") and piracy.

"Ethical issues are, at least, troubling to them," Smith says.

He and others in the IS field say IS managers should place more emphasis on ethics. That's not to say that IS organizations are dotted with accountants, but with the explosion of the Internet and a wider exchange of information outside a company's walls, many say there's a need for some guiding principles and even written guidelines.

Darwin John, managing director of IS for the Church of Jesus Christ of Latter-day Saints in Salt Lake City, says that as companies use information to compete, IS managers should raise consciousness about accompanying ethical issues. For instance, he says, someone may share information about inadvertently with a competitor or someone with close ties to one.

That's where a code of ethics comes in, he says, not to control behavior but to help make people aware of the potential land mines they face.

But some say IS managers are looking for specific guidelines.

Donn B. Parker, a management systems consultant at SRI Consulting in Menlo Park, Calif., who has written books on computer ethics, says IS professionals need a formal set of guiding principles.

Parker says he occasionally fields calls from programmers and analysts who find themselves in tight spots when they've developed software in their jobs and seek to make it available through their employers. But then an employer refuses to proceed with commercialization, frustrating the programmer. Should he commercialize his product? And if he does, would he run the risk of losing his job? Or should he negotiate a deal with the employer?

A company's culture can also help. Dow Corning's Charles W. Laceyfield says ethical behavior is a corporation builds with its "fundamental values." IS professionals at Dow, he says, abide by a set of seven IT principles. One states that information will be protected against loss or inappropriate use. Although IS professionals are able to recall E-mail that's been purged from a company's systems but is being used as part of an investigation of an employee, they can do so only if the vice president for the function where the employee works signs for it.

Ethics also can be a key IS issue in particular industries, such as health care. "We have an even greater responsibility to the patient to keep their information safe and confidential," says Universal Health Services' Linda L. E. Reine. "We have access to some pretty confidential and private information. It's up to us to keep that as secure as reasonably possible."

But when IS professionals raise issues of ethics, their bosses can find at least somewhat assurance that their conclusions are in the right place.

IS professionals "generally do extremely well if you consider all of the possible disputes that could arise, especially with new technology," Parker says. "It's amazing to me we have as few disputes and complaints of unethical practices as we do."

— Nick Sala

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PLATINUM

Why sit under the 'bad apple' tree? There are steps you can take to deal with the malcontents and irritating characters you can't afford to fire

GRUMPS! NOODGES!

By Alan S. Horowitz

One bad apple can spoil the whole barrel, goes the old saw, and that applies to more than just fruit. Woe to the information technology department that has even one employee with a bad attitude. Even if competent, "the negative effect that an adversarial, uncooperative employee has in an environment is very destructive," says Jeremy Seligman, vice president and chief information officer at Frontier Corp., a telecommunications company in Rochester, N.Y.

With today's tight IT labor market making it difficult to replace employees, it's important to turn a bad apple into apple pie. Laura Crawshaw, principal at Executive Insight Development Group, a human resources consultancy in Salt Lake City, cites the following risks of not dealing effectively with an unhappy employee:

- **Contagion potential.** Other employees often develop bad attitudes when their work environment deteriorates because of a bad apple.

- **Weak leadership.** Managers who fail to deal decisively with unhappy employees have their authority and credibility threatened.

- **Productivity suffers.** Morale declines and group focus is diverted, hindering productivity and effectiveness.

- **Damage increases with position.** The higher up the hierarchy the bad

apple, the more damaging that person's behavior is to the entire organization.

A further possibility: You lose some of your best people because they don't like working with negative, ineffective colleagues.

We all know what happened to Rome when Nero dallied. The same can happen to your department. "Act quickly and decisively," says David Alhright, director of information services at Minnegasco, a gas utility in Minneapolis. "The longer you let it drag on, the worse it is for everyone."

Since lousy attitudes come from somewhere, the IT manager's job is to find out where. When Rich D'Antonio, CIO at Dixon Ticonderoga Co., has an unhappy employee, he sits down with the employee and tries to learn what might be bothering the person. Dixon Ticonderoga is a consumer and industrial products company in Heathrow, Fla.

"Many times you hear, 'The company's not communicating,' or 'I don't know what direction we're going in,' or 'I don't know what's expected of me,'" he says.

Twice a year D'Antonio checks his employees' progress on meeting their personal goals to help head off potential problems. He says good communication is essential.

Managers should use employee reviews as preventative medicine, recommends Dave Corrine, director of applications development at music retailer BMG Entertainment in New York. Involve the employee with the goals that are set, don't just dictate

them and expect the employee to happily pursue them, he says.

"The difficult part is coming up with clear deliverables you can measure," Corrine says.

And if an employee still doesn't get it, be very specific with your criticism. "Sometimes you need to sit down and say, 'At the meeting today, you ticked off everybody in the room, and let me tell you how you did it,'" Seligman says.

MEET EMPLOYEE DESIRES

Larry Berrill, director of information systems at retailer Strauss Discount Auto in South River, N.J., tries to head off problems by accommodating employees' desires when possible.

"We allow [employees] to pursue what interests them as long as it supports our business objectives. I think that goes a long way towards not developing bad attitudes," he says.

Agricultural cooperative Citrus World, Inc. in Lake Wales, Fla., takes a multi-pronged approach to attitude problems. Says MIS director Gary DeWitt, "If an employee has a personal problem that affects his on-the-job attitude, such as marriage difficulties or drug abuse, he is encouraged to call a company-recommended counselor, he says.

Flexibility also helps. Albright had a competent employee who didn't get along with any of his team members or users. Instead of firing him, Albright gave him some job-related training and moved him to another IS area.

"It not only resolved the problem

Guilty of promoting a bad attitude?

Laura Crawshaw, principal at Executive Insight Development Group, offers managers the following self-test to see if they promote bad attitudes in their departments:

1. Do subordinates frequently seek me out for gripe sessions about other employees or departments?
2. Do I promote an adversarial "us vs. them" climate instead of encouraging win-win solutions?
3. Do I make critical comments about personality rather than performance?
4. Am I guilty of nonverbal expressions of derision?
5. Do I ignore oppositional behavior and allow employees to act out their discontent?
6. Does my team spend more time expressing its distress than resolving it?
7. Do I avoid defining acceptable standards of conduct within my team?
8. Is morale deteriorating? Are the troops more disgruntled than "granted?"

[One "yes" is cause for concern; two or more mean guilty.]

with that person, but it sent a positive message to the organization [that] we're flexible, we're willing to work with you," Albright says.

So, bad apples don't have to turn rotten. Many can be converted into sweet desserts if IS management is willing to communicate and work with them. □

Horowitz is a freelance writer in Salt Lake City.



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If you think year 2000 testing can be ignored until 1999, think again.

Like everything else about the year 2000, success with testing is more a management issue than a technical issue.

One aspect of year 2000 testing is well-known to anyone who has managed a software project:

YEAR 2000 ADVICE: PLAN NOW FOR TESTING



Approximately 50% of the money, resources and time will be spent on testing. Thus, the organization that dived in 1997 with awareness-building, inventory and assessment of its date-sensitive software will find that 12 months of effort achieved only 5% of the overall task of year 2000 remediation.

The pace is picking up this year as organizations stuff up for the implementation phase. But that will get them only to the halfway point, and it's likely to dribble into the first few months of 1999. Thus, half the work will be compressed into 12 months or less in 1999. And without intricate planning and management, the chances of success are very low.

Of course, that depends on how you define success. Some year 2000 managers will find themselves saying, "It's Dec. 31, 1999, so we must be done with our testing. We hereby declare success!" This is a classic issue for any software project: How do you know when you've done enough testing? Alas, a common answer is, "We've done enough testing when we've run out of time." A less cynical version is, "We've done enough testing when we've gone several days without finding any bugs."

The appropriate definition of success involves coverage: "We've done enough testing when we can demonstrate that our test data has exercised X% of the instructions or X% of the logic paths in our program." There are several commercial tools that provide coverage analysis; the technology is well-developed, but the practice of using the technology is not. If you want to succeed with year 2000 testing in 1999, make sure that you get coverage-testing tools selected and installed in 1998 and that your project teams know how to use them.

TIME TO REGRESS

While you're at it, buy some regression-testing tools, install them and make sure your people know how to use them. You need them because the attempt to fix year 2000 bugs will introduce new bugs in other parts of the software. A regression test checks software before and af-

ter a change is made to see not only if the changes work, but also whether another part of the software was broken because of the change.

We often overlook that risk for the simple "one-line patch" phenomenon in maintenance projects, though legendary stories abound of catastrophic disasters resulting from that practice. With year 2000, it's an utterly unacceptable practice because of the magnitude of the software changes required. For a typical Fortune 500 company, 80% of the business

applications are date-sensitive and therefore need to be remediated. And the remediation effort typically will involve modifying 5% of the code.

While they're at it, programmers are tempted to fix a few other bugs that they discover in the legacy systems as well as eliminate "dead code" that may or may not turn out to be truly dead.

According to metrics guru Capers Jones, approximately 75% of the code changes in year 2000 projects introduce new bugs. And when you're dealing with an enterprise portfolio of 300 million to 500 million lines of code, that means a lot of new bugs are introduced.

Without regression testing to provide a before-and-after comparison, the project team won't know if everything that used to work still does. The IRS has already acknowledged one such experience in its year 2000 project, which resulted in 1,000 innocent taxpayers receiving an erroneous notice of late tax payments. More interestingly, a major Wall Street brokerage made an innocent mistake in its year 2000 project that resulted in a windfall \$19 million deposit being made in each of its clients' accounts.

Finally, year 2000 project managers need to implement a relatively unfamiliar form of testing, now baseline testing. If you're not familiar with the concept of baseline testing, think of it this way: If you've got a stable legacy system running

in production mode, then the objective of the year 2000 effort is to replicate today's behavior with the year 2000-compliant version of the system.

But what does that mean? We can't simply declare, "Today's system works, and we want the new version to work, too, when we make the year 2000 corrections." Instead, we must say, "We have 1 million test cases, which represents a 98% coverage of the logic paths in today's version of the system, and here is the output of those test cases."

After we finish making the year 2000 changes, we will run the same million test cases to verify that we get the same [logical] output. That's how we'll know the system still works."

COMPUTERWORLD

Want the latest on the year 2000 problem? Look no further than our Web site's Year 2000 page: www.computerworld.com.

BUGS EVERYWHERE

Is this trivial? Consider the fact that today's "stable" system almost certainly contains bugs. Some bugs are known but not yet fixed, while others are latent and unknown. If you're dealing with 200 million to 500 million lines of code, then control and configuration management are of paramount importance. And that means, with very few exceptions, that the year 2000 effort must replicate the bug behavior of today's system. It also means that if you're begun remediating your applications without having conducted a baseline test, you're already out of control.

There's a lot more to this, of course, and there are some excellent year 2000 testing vendors that will be happy to lend you a hand. But don't call them, and don't begin making your plans, in 1999. Even though you may think that the primary activity for 1998 is implementation, you must begin planning for year 2000 testing now.

Yourdon heads up the Year 2000 Advisory Service at the Cutter Consortium in Arlington, Mass. His most recent book is *Time Bomb 2000*. He can be reached via E-mail at ed@yourison.com.

Review Center

Network computers

EARLY NCS PASS THE TEST

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network computers
can do the
job for most
users and systems
administrators.

By Kenneth I. MacLeish

Udgy client PCs are being publicly challenged by network computers and by a variety of thin-client machines. And if they can't do those network computers can do the job, at least for most users and managers.

In an effort to determine the state of the network computer art and what network computers might offer to the corporate information systems manager, Client/Server Labs, Inc. tested samples of hardware from Sun Microsystems, Inc., IBM, Neoware Systems, Inc. and Network Computers, Inc. (NCI), an affiliate of Oracle Corp.

We set out to assess the capabilities of this group of network-centric devices and to see how well they live up to the sometimes-extravagant promises of network computer promoters. It's still too early in the development of this class of computer to make definitive vendor recommendations. Instead, we offer observations on the core technology and the vendors' strengths and weaknesses to help you decide what might work best for your organization.

4 network computers/thin clients

- IBM
- Neoware Systems, Inc.
- Network Computers, Inc.
- Sun Microsystems, Inc.

PRO: Promises of simple, server-based software installs and easier administration seem to hold up in practice.

CONS: Client hardware is expensive; some vendors require extra server hardware.

In our tests, we didn't find much that's negative about a network computer-based computing arrangement. Users who work with video editing, three-dimensional modeling, software development and a few other disciplines might need the full capabilities of a well-equipped PC, but the vast majority of business computer users spend their computing time in a small group of applications. That group could almost certainly be switched to network computers without missing a beat, and in many cases without noticing any functional difference beyond a different log-in screen and a quieter office.

You must distinguish between true network computer

operation, in which an application is downloaded from a server and run on a local processor, and thin-client operation, in which applications are run on a server and the local machine performs only I/O functions. All four vendors' machines are capable of both modes of operation, depending on the servers and server-based software to which they have access.

COST APPEAL

The most powerful appeal of network computers lies in the capability and potential cost savings of centralized administration. For example, a team of people might have spent days deploying an application for an enterprise that we had one person do in less than an hour.

And we could be certain that each user would have the same operability.

We tried sample installs of Microsoft Corp. Office applications and Netscape Communications Corp. Navigator. Whatever we enabled on the server was what the network computer user saw. Keep in mind that centralized control is allowed, not required. By establishing a hierarchy of subadministrators, project managers or workgroup leaders, each with his own permission structure, the system administrator can use the server-based software to delegate tasks and responsibilities.

The Network Computer Reference Profile, drafted in mid-1996 by Apple Computer, Inc., IBM, Netscape, Oracle and Sun, lays out the basic guidelines for what a network computer should be, although a lot of flexibility is allowed. The purpose was to lay the groundwork for a successful challenge to the increasing dominance of Windows/Intel boxes on business desktops. That was done largely by establishing Java and the Java Virtual Machine as common capabilities of all network computers.

The network computers we tested share the following and other distinguishing features common to the network computer ideal: small size, relatively low price, quiet (or silent) operation, absence of local drives

(although the Neoware unit was equipped with an optional 1G-byte hard drive), built-in Ethernet connectivity and audio I/O connections. Cost without a monitor ranges from \$799 for the NCI machine to \$1,500 and more for IBM's and Neoware's offerings. As a group, they're still more expensive than some good \$699 PCs. All machines offer standard keyboard/mouse/video connections, as well as IBM 1270, IBM 1230 and XWindows terminal support, allowing easy replacement of green screen terminals with network computers that offer

added functionality.

For our tests, we used the IBM network computer with Dell Computer Corp.'s 2400 Pentium-II servers, one running NT 4.0 and one running Citrix Systems, Inc. WinCenter. The Neoware was connected to a Hewlett-Packard Co. E43 server also using NT 4.0. It used the same Dell WinCenter machine for Windows applications.

Because the network computers are more dependent on the server than a PC would be, a basic concern would be whether they impose extra demands on server setup and administration.

In general, the answer is no: Installation and operation of server operating systems are no worse, and in most cases are better than, a run-of-the-mill client/server operation.

But one aspect peculiar to all but the Neoware client is the requirement for proprietary server software to let the network computers boot and initiate their own operating system. Sun and NCI go a step further in needing their own server hardware as well. The IBM Model 1000 that we tested can talk to any IBM AIX, Microsoft Windows NT 3.51/4.0 or IBM

OS/400 machine with the addition of IBM's Network Station Manager server software. That is available at no cost from IBM's World Wide Web site. The Neoware Universal Client can work with any commonly used server configuration.

That difference also means that the Sun and NCI machines would require multiple servers on the back end in order to offer desired combinations of user applications. For example, to run the Microsoft Office suite, the Sun and NCI network computers would require either a Citrix WinCenter server or Microsoft's Windows-based Terminal Server (Hydra) in addition to their host server.

Compatibility issues aside, the installation of the network computer-supporting software from Sun and NCI is simple. In the case of the NCI software, it couldn't be simpler: Turn on the server, put the CD-ROM in the drive, and press the reset button. When the screen prompts for a reboot, you're done. The system now has administration functions for user accounts and SmartCard programming, and it's time to add the applications as we described.

Compatibility issues aside, the installation of the network computer-supporting software from Sun and NCI is simple. In the case of the NCI software, it couldn't be simpler: Turn on the server, put the CD-ROM in the drive, and press the reset button. When the screen prompts for a reboot, you're done. The system now has administration functions for user accounts and SmartCard programming, and it's time to add the applications as we described.

THE PRODUCTS AT A GLANCE

IBM 1000

\$999

PRO: Third-generation machine from a big hardware name offers versatile back-end possibilities.

CON: Stump price for a simple device.

IBM positions the 1000 as the "Java-focused network computer" in its line of three network computers. The earlier and less expensive models 100 and 300 are touted respectively as the "access" computer and the "Internet" computer.

This model was one of two machines in our group to incorporate a SmartCard reader (NCI was the other), although it wasn't an integral part of the machine's operation. That might gain IBM easier access to remote point-of-sale installations and companies that already use SmartCards as company identifications. IBM has also equipped it with a single PCMCIA connector (Type 1, II or III), making it the best-equipped of the group for I/O ports.

Powered by a PowerPC 601 CPU, our sample came with 32M bytes of RAM, which is expandable to 64M bytes.

In maximum video resolution, at 1,600 by 1,200 pixels, was the best of the group, helped by 2M bytes of Video RAM.

NCI FNC-100

\$4,295 for two-client Network in the Box with two monitors, two pairs of speakers, network hub, cables, SmartCards and server hardware and software. Additional network computers are \$739 each, without monitor or speakers.

PRO: Incredibly simplified installation process makes this an attractive way to try network computers.

CON: Must buy NCI server for the initial installation.

NCI's Network in the Box is the easiest computer product to set up we've seen. The package of two network computers (built by Oracle's OEM, Funai USA) and a server (built by NEC Corp.) comes with a large diagram that shows how everything connects. The one-step server software install finishes the process. A SmartCard is needed to get a log-in prompt on an NCI machine, which may offer benefits in ease of control but may also present real-world problems with lost or stolen cards.

The network computer hardware may also keep its price advantage because of the use of standard parts. This was the only system to use a Pentium processor (133 MHz) and standard PC motherboard. That suggests the price could drop more rapidly for an NCI clone than for any of our other samples. But an NCI system purchase still comes high.

Neoware Supra-66

\$1,199

PRO: Neoware calls this a Universal Client, and it lives up to that billing. It's the most versatile machine of the group. **CON:** It's also the most expensive machine of the group, although this configuration does include an optional price-busting hard drive.

Neoware takes pains in the presentation of its thin-client machines to stay away from the terms "network computer" and "NC."

Yes, the machines can perform all those functions, but Neoware wants to be known as the Universal Client company, the people who can work with anybody's back-end setup (or even independently, in the case of our test machine).

Neoware shipped its first thin-client machines in June 1996 and may owe the distinction of the longest track record with thin-client hardware. The current machine uses an Intel 1600 processor, more commonly seen on SCSI adapters, but well-suited to the fast I/O needs of this situation. The system board has 4M bytes of RAM built in and two single in-line memory module slots for another 64M bytes (our sample had 32M bytes). However, a sound capability isn't standard.

Sun JavaStation

\$749

PRO: Unique case design makes it the most decorative.

CON: Combination of high price, minimal connections and Sun-only server requirement would seem to put it at a disadvantage in this group.

The JavaStation wasn't commercially available at the time of this review, although it's due for release by the end of this month [Review, CW, Feb. 9]. Sun has deployed several thousand of them internally and in collaboration with selected partner companies such as The Sabre Group, British Telecommunications PLC and Scottish Telecom. Sun sees its best market potential in large corporations that use custom applications, which would better accommodate the total Java focus of its network computer.

With only one serial port for peripheral connection, the initial version of the JavaStation lacks some basic functionality that may slow its acceptance in the marketplace. Sun is addressing that omission in the next version, due as early as the second quarter of this year. □

MacLach is a technical specialist at Client/Server Labs, Inc. (www.csllc.com) in Atlanta, a primary test partner of Computerworld.

SMS SWATS LIFE'S LITTLE HEADACHES

Microsoft's Systems Management Server shows promise in a review by Computerworld and Client/Server Labs

By Garrett Michael Hayes

FOR ANY BUT the smallest organization, the most difficult ongoing challenges in managing a computer network often revolve around many mundane and tedious tasks. With Version 2.0 of Microsoft Corp.'s Systems Management Server (SMS) package, the company seeks to address many of those issues, at least for networks largely composed of Windows-based systems.

Now in its first general beta, this version (which will replace 1996's Version 1.2 in the second half of the year), promises to add some very useful functionality to the network administrator's arsenal. Tools are included to aid in tracking equipment and its configuration, handle the various licenses and versions of software in use and provide assistance to widely dispersed users—all tasks that rapidly siphon off immense blocks of valuable time. Though the latest version of SMS still has a few loose ends and isn't yet a fully integrated package, it represents a significant change from what has been a disconnected collection of disparate utilities to a much more manageable bundle of tools.

A DECENT, IMPERFECT START

As a first-round beta, the current version seems to be reasonably stable and fairly complete in its list of features. Highly visible debugging information, missing tool tips and several inconsistencies among similar screens are the most visible signs of youth. Also, some functions, such as software distribution, seem to require too many less-than-intuitive steps. Other functions, such as Remote Diagnostics and Remote Control, are nearly ready for general use. I tested the software on a pair of Hewlett-Packard Co. NetServer systems, one running Windows NT Server 4.0, the other Windows NT Workstation 4.0.

The most noticeable change is the pre-



sentation of the entire set of tools that ties in to an umbrella system called the Microsoft Management Console (MMC). Planned for inclusion as part of NT 5.0 but also included with SMS for NT 4.0, the MMC brings management utilities into a single location with a consistent presentation similar to Windows Explorer. Management tools such as SMS simply snap in to this framework when they are installed.

SMS provides tools in the four primary areas: Inventory, Software Distribution, Software Metering and Remote Diagnostics. Information is gathered by the server, stored in a Microsoft SQL Server 6.5 database, manipulated and distributed. Agent software running on the various client machines passes information to and accepts instructions from the management servers. In the first beta, only 32-bit agent software for NT and Windows 95 was provided, though 16-bit agents for Windows 3.1 and Mac OS are planned for the final product.

INVENTORY-RICH

Underlying all the other functions is the hardware and software inventory. The inventory information gathered by the agent and stored centrally is both rich and detailed. For example, using simple menu functions or database queries, help desk operators could quickly learn which video adapter a particular system uses before dispatching service, or an administrator could find every location where a certain network adapter is used

before planning an upgrade. A similar level of detail is available in tracking software installations.

Knowing what software is installed is of course the first prerequisite to controlling software, and here also, SMS provides some very useful functions. Using simple, menu-driven setups, an administrator can set limits on what software can be used, where and when it can be used and by whom. Those functions also allow for sophisticated concepts such as floating the number of licenses among different locations at different times, even for software that wasn't designed to be metered.

Most interesting is a feature that lets the administrator set limits that won't be enforced during a start-up period. Instead, the system will monitor software usage of the specified piece of software during start-up so that administrators can spot usage patterns.

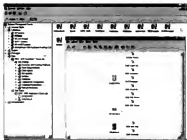
In the area of Remote Diagnostics, SMS includes tools for handling two important aspects of help desk-type assistance. The first provides direct, real-time access to the existing diagnostic information of a client machine through tools such as NT Diagnostics. The second provides remote control features, such as those that might be found in various third-party applications, that let an administrator view and control the desktop on a remote system simultaneously with the user. That and a telephone let a support technician provide same-room-type support to a user many miles away.

The most powerful features in SMS 2.0 involve software distribution. Microsoft approached this task, always a major headache for systems administrators, with some obvious care and thought. Unfortunately, the degree of

power and flexibility that Microsoft has sought to provide adds complexity. It may take the administrator some effort to become familiar with concepts such as Collections, Queries, Packages and Advertisements as well as the relationships among them.

Once mastered, though, the tools let an administrator offer almost any application to users across the network. Point-and-click screens let the administrator specify things such as which user, group of users or group of systems should be offered the software; when the software should be offered; whether the installation is mandatory; and which user rights go with the software.

Overall, SMS 2.0 looks quite promising. The second beta release, expected in



The Microsoft Management Console gives an administrator a single view of all SMS components

the second quarter, will bear closer scrutiny. Microsoft plans to add items such as support for Windows 3.1 and Macintosh clients, support for Novell, Inc. NetWare in both binary and Novell Directory Services modes, query building features that will bypass the need to use raw SQL queries and configuration utilities for setting up different levels of security for different administrators. □

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In Depth

POWER PLAY

In a massive IT effort, a California start-up is taking over the state's power grid. As utilities face a deregulated future, all eyes are on Cal-ISO

When you enter the California Independent System Operator's (Cal-ISO) unmarked facility, located in the oak-studded hills above Folsom, Calif., it's obvious that this is an organization thrown together in a hurry. A shabby desk is the only piece of furniture in the front lobby. Unopened IBM crates are stacked in clean rooms. The scents of new paint, carpet and teak pervade.

By Deborah Radcliff

But when you step into the hushed, 150,000-sq.-ft. command center, there is a sense of completion.

That and an urge to say, "Beam me up, Scottie."

The focal point of the *Star Trek*-like command center is a 160-ft., curved, map-board wall alight with multi-colored indicators that show the location and wattage of energy. To the left, four Electrohome Ltd. video screens project weather patterns and details of energy transmissions coming in from 16 Western states.



POWER PLAY

Computerworld March 16, 1998 (www.computerworld.com)

CONTINUED FROM PAGE 73

All this is monitored by administrators manning 12 forward-facing consoles. Each console houses four Digital Equipment Corp. workstations.

Dennis Fishback, chief information officer at Cal-ISO, likens the system to an air-traffic control center. Following the path of least resistance, energy flows into the grid from power generators and out of the grid as orders are processed for bulk energy from 20 certified power marketers.

Those orders then trickle down to other middlemen, wholesalers, retailers and eventually to California's 27 million utility customers. The wattage must remain balanced at an absolute constant or outages will occur.

This is technology at its most critical.

BRAVE NEW WORLD

Like pieces on a chessboard, players in the \$21 billion energy industry are aligning themselves to compete in an open market. Existing regulated utility companies are divesting themselves of entire divisions, buying up service organizations and spinning off unregulated subsidiaries of their own.

Cooperatives and new entities are emerging, such as power schedulers, which auction wholesale power and schedule deliveries; power marketers, brokers that match wholesale buyers and sellers; and energy service providers, which offer new retail services for businesses and residential users.

The complexity of federally mandated deregulation is baffling because users, regulatory efforts and the like differ from state to state.

Because no one knows how the market will shake out, the key to success is flexibility. Business processes and the technology to support them must be fluid. New technological deployments, upgrades and staffing must roll out at breakneck speed.

"Power is the last big deregulation. In the scope of transformation, power deregulation is more important than telecommunications," says David Cain, manager of information systems at the Electric Power Research Institute in Pa-

lo Alto, Calif., a technology development and research company that serves utilities.

At deregulation moves forward, all eyes are on California, which is the first state to aggressively open its power grid to new forms of competition.

At the heart of California's deregulatory efforts is Cal-ISO, a state-chartered, nonprofit start-up. It has been charged with creating a new infrastructure and management to baptize most of the state's power grid, or the power lines and towers that snake across 124,000 square miles of the Golden State.

Previously, the grid was managed by the state's three investor-owned utilities: Pacific Gas & Electric Co., San Diego Gas & Electric and Southern California Edison. The first such grid-management system to start from scratch, Cal-ISO must bring to market new technologies intended to meet several complex energy-management, allocation and back-office

ADVICE FROM THE FRONT

Dennis Fishback is no stranger to tough tasks. During his 22 years at Virginia Power, he managed a three-year transition from a mainframe to a client/server environment; cut overall computing costs in half; and improved customer service ratings. He had the luxury of time in the Virginia Power makeover. But in developing the infrastructure for the Cal-ISO, he had to forego many traditional business



Dennis Fishback

business goals. The deadline is March 31.

LATE START

Fishback joined Cal-ISO in September to pull together the infrastructure and communications system on which that mission depends.

He laughingly calls this system the "W.E.net," short for Western Energy net. It is a sophisticated, large private network built by AT&T Network Services that cross-creates between the state's power substations and all other network users. W.E.net has built-in redundancy and a capacity higher than that of the AT&T-developed Nasdaq private network.

"The challenge was to connect many organizations together and create technology to support a new business environment. How do you tie all these together?" says Jack Ellis, executive vice president of operations at Automated Power Exchange, Inc., a Los Altos, Calif., start-up power scheduler.

Ultimately, Fishback had to push a state assembly-mandated Jan. 1 deadline back to March 31, which wasn't surprising given that Cal-ISO had less than a year to find a building, develop the technology and infrastructure and hire staff.

It has been an exercise in creative planning and problem solving, says Ellis.

Expediency forced him to do design, development, production simulation, staffing, testing and debugging in tandem. "We've had to do a lot of activity in parallel," he says. "There was no time for change management. You fix problems in real time and put the fires back on it was chaotic."

The energy management application, an off-the-shelf package from ABB Systems Control Co. in Norwalk, Conn., is un-

derstanding. When asked for advice, he offers the following:

- Don't skip any steps in traditional business practices, no matter how rushed.
- Leverage your vendors to work together on integration, implementation and testing.
- Put your staff in place ASAP to top their collective knowledge during early planning.
- Conduct regular meetings with all users of the systems during all stages of planning, implementation, testing and follow-up.

— Deborah Radcliff

dergoing real-time testing. The second phase, a custom-developed scheduling application and interface, is on hold until a complicated set of network redundancies, such as hot fail-over, fallback and fall-forward scenarios, can be implemented.

And yes, there are bugs in the management system being tested. Ellis compares the problems with the system to work-around: announcements such as transmission errors that occur when test files end without carriage returns or inconsistencies in the messaging system that lead to inaccurate allocation confirmations from Cal-ISO.

"This has been done on an accelerated schedule, so you do things where you've got to hold your nose a little bit," Ellis says.

JUMP RIGHT IN

Problems began in 1996, before Cal-ISO incorporated or hired any staff. Fishback says The original input for developing the grid-management system came from the three large utilities that then owned the grid. Because Fishback and his staff didn't come on board until July 1997, they had absolutely no input during the planning stages.

"The technology was being delivered before any of us got here, so we're stuck working within the context of things that are instead of starting the project the way we would have wanted to," he says.

With an eye on the future, Fishback befriends with system users and the business units involved to iron out kinks and polish the business processes. "Now that we have more breathing room, we're trying to get more proactive about our change management," he says.

Some of the kinks in the processes themselves,

he says, were caused by inadequate training. For instance, users input unbalanced schedules because they don't understand their applications well enough. Cal-ISO provides training materials for certification but "it's also a matter of practice and self-policing," Fishback says.

Thus far, Cal-ISO's technology price tag rings up at just over \$500 million. But Fishback is getting his money's worth by putting vendors to work.

"It's a matter of taking advantage of new and existing technologies to deliver the kind of reliability that's required to manage real-time operation of the electrical grid," he says. "So we supplemented the subsystem vendor resources with experts from Digital Equipment Corp., Oracle Corp. and Netscape Communications Corp. Together, those folks are slugging through deployment problems."

According to analysts, Cal-ISO, though not perfect, most likely will accomplish its goals by the new March 31 deadline. "Everything's being cooked up in California and about 15 other states right now. But there's no experience base to learn from," Cain says. "Nobody really knows what deregulatory consequences will be from the standpoint of IT."

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IT Careers

Recruiting J. D. Edwards:

The search for

perfection

By Kerry Lee



nical skills and the personnel skills dealing with people — and finally I just gave up," he says.

Eventually a recruiting company helped Labarbera fill the position. But his story reflects an ongoing problem in the J. D. Edwards market — finding people who have the needed J. D. Edwards skills and who can marry those skills with good, solid business skills.

"It's clearly a resource-constrained world," says Roger Cerritelli, national partner in charge of enterprise package solutions at KPMG Peat Marwick LLP's J. D. Edwards practice in Philadelphia.

"Our first cut of the marketplace is to find experienced J. D. Edwards people. When you can't find that, you tend to look for people who have good IT backgrounds, application development backgrounds, backgrounds with similar packages, people who come out of the financial functional area or [human resources] or supply-chain manufacturing, and we can teach them the nuances of the package," Cerritelli says.

And how does a person gain the coveted J. D. Edwards skills? Catherine Bucher, vice president of client services and training at J. D. Edwards in Denver, says companies most often will send middle managers to J. D. Edwards for training. Then the managers take that knowledge back to their companies to build project teams.

People who work with J. D. Edwards generally take training — and view the job — from either an application or a

technical perspective, Bucher says. "From the application perspective, they would be receiving training in how to make our financial systems work — how to implement them, how to make our distribution and manufacturing systems be implemented properly."

From the technical perspective, "We also do what we call CNC [configurable network computing] training and technical install training, which is how to actually configure the network," Bucher says.

J. D. Edwards professionals also need strong interpersonal skills, Labarbera says. "You've got to be able to deal with all different kinds of users and not be so technical. Be able to explain it in a language a user understands. Personality skills are a definite plus," he says.

So-called "best practices skills" are also important, Cerritelli says. By that, he means "the best way to pay an invoice, process payroll [and] handle employee benefits."

J. D. Edwards professionals must be able to listen to a client's needs and apply the software accordingly, says Lee Dempsey, a manager in the package integration solutions practice at KPMG in Charlotte, N.C. Questions that Dempsey says hiring managers need to ask a J. D. Edwards-skilled candidate include: Is the person a good listener? Can he assimilate all the data that he gets from a client and come up with an improved business process and an accurate configuration of the software?

These elusive professionals come from two distinct vocational groups, says Jay Price, president of AMX International in Seattle. "The first and probably the largest is what we call application consultants," Price says. "Application consultants are often controllers, CFOs, VPs of operations, manufacturing managers, who have installed J. D. Edwards or at least have that industry background and experience at the business level or the application level. So a very good catch, too, would be

J. D. Edwards tutorial

J. D. Edwards is an enterprise resource planning system from J. D. Edwards & Co. in Denver. It supports financial, distribution and manufacturing. It is targeted at discrete or process industries, including engineer-to-order, assemble-to-order, make-to-order, highly repetitive and make-to-stock environments. It runs on the AS/400 or on a client/server platform.

someone with a CPA [and] a certification with [the American Production Inventory Control Society]," Price says.

The second group is involved more with the technical side of things. These would be experienced project people — programmer/analysts and beyond, MIS managers, people who managed complex projects, Price says.

Experience with J. D. Edwards is applicable to various industries, experts say, including manufacturing, distribution, energy, chemical, accounting, retail, pharmaceuticals and real estate.

Information technology professionals who want to work with J. D. Edwards should just jump in, staffing experts say. Many companies will train an otherwise qualified individual in J. D. Edwards if the person has other skills a company is seeking. □

Lee is a freelance writer in Austin, Texas.

The demand for J. D. Edwards

- 5% of companies have the skill
- 2% of companies plan to train for the skill this year
- 5% of companies plan to hire for the skill this year
- 21% salary premiums are being paid to contractors with the skill

Source: Computerworld's 1992 Annual Skills Survey

Other skills you'll need

TECHNICAL

- Relational database experience
- Ability to combine data from J. D. Edwards with data from legacy systems
- Experience with custom interfaces
- Ability to combine data from various systems
- Systems integration ability
- Programming language (more than one if possible)
- An understanding of the connectivity between PCs and the AS/400

NONTECHNICAL

- Industry knowledge
- Integrity
- Ability to convey confidence
- Project management skills
- Ability to relate well to various people and groups
- Ability to listen well
- Willingness to continually learn software upgrades

LINA FAFARD

HOW TO HANDLE AN IT COUNTER- OFFER

In the frenzied IT job market, IT pros will likely receive, or be advised to give, a counteroffer. Before launching a wage war, here's what to expect:

Congratulations! You just received and accepted an excellent IT job opportunity. Now it's time to meet with your boss and resign. You can do this by E-mail, set up a meeting or write it in the sky... whichever way, it's time to say, "I'm outta here!"

But hold on. The next thing you know, your boss throws himself at your feet, wraps his hands around your ankles and says, "Please don't leave us now! I was just going to put you in charge of our hottest project and schedule training for you in Java and ActiveX! We really need you now, more than ever. Whatever your offer is, we'll beat it!"

Believe it or not, that happens more often than not in the current IT market (maybe not quite so dramatic or with such good results). Recently, while attending a Professionals In Human Resources Association meeting, the question of whether to issue a counteroffer was posed. Approximately 200 human resources managers were there. The members of each table had to decide what they would do in this particular case. Every table's representative stood up and said they would issue a counteroffer to buy them enough time to replace the individual.

They also said that even if the individual accepted the counteroffer, the employee would probably be gone in six months. But because of the shortage of skilled IT professionals and the value they provide to the operation of the company, for any duration, it's worth pulling out all the stops to try to keep them. It's going to cost the company at least the same amount of the existing employee's salary

plus a 10% to 20% increase, recruiting costs and the cost of downtime it takes to refill the position.

Some call this a desperate measure, and it is. Counteroffers aren't a new practice. They're just more prevalent now. Usually if a person accepts the counter, the replacement process won't start until the employee leaves. That position will be targeted for replacement, and if the right person comes along he may get hired into another position with the opportunity to move over when that position opens.

DON'T COUNT ON A COUNTER

The impact on the rest of the IT team is risky. Counters usually are reserved for needed, desired and difficult-to-replace IT personnel. Therefore, as an employee, you can't count on getting a counter. Beware of going on a "fishing expedition"—seeking another offer to use as leverage to get a raise or promotion from your existing employer or to merely test where you fall in the market.

Most people, including IT professionals, decide to leave their positions because of the differences in philosophies and work styles of their immediate environment. Those issues don't change. Therefore, accepting a counteroffer simply prolongs the inevitable.

If you are given a counteroffer, look at the long-term picture. Imagine yourself at that same company six months from now, one year from now and longer. Do you see anything changing in your favor? The issues that made you decide to leave probably won't change.

Getting a counteroffer is flattering as well as a bit confusing. Not all companies give them. Some companies, as a matter of policy, won't issue one. Many have an additional policy that states that anyone who leaves may not be rehired. And if your company does extend you a counteroffer, you may feel that it should have paid you that salary all along, and it's now too little, too late.

On the other hand, if money really is your only issue (it rarely is), you may feel uncomfortable putting your employer in a position to need to extend a counteroffer. As a result, the potential silent resentment from your IT manager may inhibit your future growth with that company. In addition, you may feel obligated to stay longer with that company than you would have if you hadn't accepted a counter.

Some people feel an emotional connection and sense of loyalty to their associates at work and don't want to leave them in the middle of a software conversion or rollout. One thing you can do is to offer to work as a contractor on weekends or evenings to help hand over responsibilities and get your existing co-workers through a difficult time. You can still keep your commitment and accept the new opportunity without burning a bridge or feeling that you're abandoning your team. ☐

Fafard is vice president of training and marketing at The Partners, an IT search firm in Torrance, Calif., that specializes in placing software professionals throughout the West Coast. She can be contacted at www.jobbrowser.com.

EXECUTIVE TRACK

David E. Kepler, 45, director of global information applications at The Dow Chemical Co.,

has been named to the newly created position of vice president and chief information officer at the Midland, Mich.-based chemical company. In his new role, Kepler will be responsible for all internal and external information systems activities within Dow.

Kepler will lead a 1,300-person IS organization, which includes 600 people from Dow's 1996 application development alliance with Chicago-based Andersen Consulting. Kepler will also join the company's corporate leadership team and participate in ensuring that Dow's

information systems are fully integrated with the company's strategic business goals.

Roger Gurnani has been named vice president and CIO at Bell Atlantic Nynex Mobile in Bedminster, N.J. He is responsible for the company's customer support, billing and network applications. Previously, Gurnani served as executive director of Broadband Systems at Bell Atlantic Corp., managing the development and implementation of systems for fast-packet data and switched digital video services.

Martin L. Walroth, 55, has been named vice president of information technology and CIO at Ingersoll-Rand Co. in Wood-

cliff Lake, N.J. Walroth previously served as executive director of information technology at the company, a diversified industrial equipment and components manufacturer.

Honorio J. Padron, 45, has been named senior vice president of process engineering and CIO at Dallas-based CompUSA, Inc., a leading computer superstore retailer. Padron is responsible for all engineering business processes and managing all information systems functions for the company. He previously was senior vice president and CIO at PepsiCo Restaurants International in Dallas. ☐



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REGIONAL SCOPE

Michigan

By Steve Alexander

MICHIGAN has a highly competitive IS economy in a northern climate where the benefits of small-town life can be found. In Detroit, Michigan's largest city, the big auto companies and their suppliers dominate the IS market. But Ann Arbor, Grand Rapids and Lansing are distinct regional markets with lifestyles that are a world apart from the Detroit metropolitan area. Here's a look at the four markets:

HEAVY METAL

IS salaries in Michigan

JOB TITLE	TOTAL COMPENSATION
Chief information officer	\$109,000
Director of IS operations	\$76,000
Manager of voice and data communications	\$71,000
Project leader	\$62,000
Project manager	\$60,000
Database manager	\$61,000
LAN manager	\$51,000
Senior systems analyst	\$50,000
Systems analyst	\$48,000
Computer operations manager	\$48,000

SOURCE: COMPUTERWORLD'S 1997 ANNUAL SALARY SURVEY

DETROIT

MARKET SUMMARY: The city is a mix of heavy industry and high technology, and it seems everyone is hiring. "We hire nearly all client/server people, and we are not able to fill our more than 30 open positions," says Don Brett, CIO at Detroit Edison. "If we hire 30 people a year, we've done well. Since every year there is attrition, we're struggling to stay even with what we have."

TOP IS JOBS AND SKILLS: "The skills we're really looking for are Java, objects, data warehousing, data mining, software integration and middleware," says Sue Unger, executive director of information services at Chrysler Corp. in Center Line, Mich. "But the types of people we are looking for are those who can really align technology with the business."

MAJOR EMPLOYERS: The auto industry is Detroit's largest IS employer and has been a hybrid of mainframe and client/server use, but new hiring is heavily client/server, Unger says.

QUALITY OF LIFE: Sources declined to talk about Detroit's lifestyle as a recruiting tool for IT professionals.

GRAND RAPIDS

MARKET SUMMARY: The labor pool is tight, and contract agencies are making good money. "The thing stretching us the most is not so much the other companies we have to compete with but the contract programming services, which tend to eat up any available resource, then remarket it," says Greg Daniels, senior vice president and CIO at Old Kent Financial Corp., a regional bank in Grand Rapids.

TOP IS JOBS AND SKILLS: Year 2000 projects are driving the hiring of mainframe Cobol programmers, while the growing number of applications is pushing client/server hiring. Certified Novell Engineers are hard to find. The ability to manage projects is a highly sought skill.

MAJOR EMPLOYERS: IS employers include Steedcase, Inc., an office furniture manufacturer; Meijer, Inc., a grocery and general merchandise retailer; and Amway Corp., a direct sales company.

QUALITY OF LIFE: The area offers small-town ambience, 15-minute commutes, sports farm teams and a symphony orchestra.

ANN ARBOR

MARKET SUMMARY: Ann Arbor is a small college town that nonetheless has a significant pool of IS workers. "Everybody is hiring. We are probably competing with contracting agencies in many cases," says Michael Karaman, vice president and chief technologist at The Medstat Group, Inc., an Ann Arbor health care decision-support systems vendor.

TOP IS JOBS AND SKILLS: Oracle database skills — both developer and database administrator — dominate the local Unix platform market, as do 20% salary premiums. Also sought are people skilled in C, C++ and object-oriented programming and analysis. Mainframe jobs involve mostly Cobol programming for year 2000 projects.

MAJOR EMPLOYERS: Employers include the University of Michigan and automatic data processing and software firms.

QUALITY OF LIFE: The university offers continuing education and culture, despite the small size of the town. Ann Arbor housing costs are high, but country living is only 10 minutes away.

LANSING

MARKET SUMMARY: Lansing is a volatile IS market in which some companies are hiring aggressively. In some cases, the hiring is for year 2000 efforts, and in others, to rebuild IS departments that formerly were outsourced.

Other firms are trying to hold on to their existing IS staffs, says Carl D. Bond, vice president of the information systems division at Farm Bureau Life Insurance Company of Michigan in Lansing.

TOP IS JOBS AND SKILLS: Hiring LAN and WAN network development and administration talent is a top priority. Hiring is client/server dominated.

MAJOR EMPLOYERS: The IS market is diverse and includes state government, the leading IS employer, Michigan State University; several insurance companies; and General Motors Corp. facility.

QUALITY OF LIFE: The area promotes itself as an attractive smaller city with less traffic, shorter commutes, less crime and a community orientation.

Alexander is a freelance writer in Edina, Minn.



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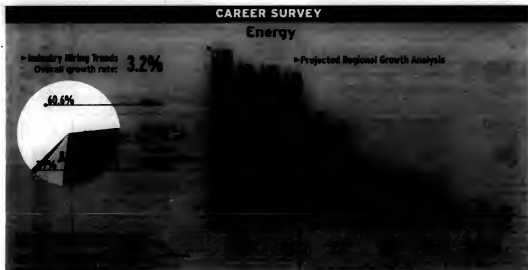
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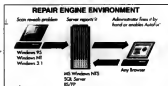
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INDUSTRY ALMANAC

Gorillas in the mist

While leading technology stocks taking a slow breath, the tech bull the Gorilla from HyperCaffium Holdings Inc., due in April, offers investors a long-term buying strategy for those traditionally volatile stocks.

Q: Who is the "gorilla"?

As the gorilla is a company that emerges and has ownership in a product space through a proprietary set of technologies or architectures, says co-author Paul Johnson, a senior technology analyst at BancAmerica Robertson Stephens in New York. This is typical of the computer market, where the most widely used product morphs into an industry standard. Gorillas include Cisco Systems, Inc. (NASDAQ:CSGO), Intel Corp. (NASDAQ:INTC), Microsoft Corp. (NASDAQ:MSFT) and Oracle Corp. (NASDAQ:ORCL).



Q: How does the game work?

As investors must try to spot high-tech market segments that are experiencing hypergrowth, which in the past have included client/server software suites, networking technology and PC software. They then must buy up all the players they think could possibly become the gorilla down the road, a process that can take years. At that point, investors have to show patience and let the market determine who the gorilla really is.

Q: Couldn't I have money on shares that don't pan out?

As there is that chance, but most likely the eventual gorilla stock will perform so well that its gains will outweigh any poor performance of other stocks that you hold, Johnson says. The goal is to limit the traditional volatile trading in high-tech stocks while building long-term investments. But investors must be ready to sell off their gorilla stocks eventually, he warned, because someday a gorilla's dominance in one segment could be obliterated by emerging technologies.

Q: How do recent problems with some PC stocks affect "gorilla game" players?

As in Intel's case, there isn't cause for worry because gorilla stocks are resilient and are great investments. As for Compaq Computer Corp.'s troubles, they aren't a gorilla candidate because they do not own standards in the PC hardware market. This means gorilla game players have to avoid the likes of Dell Computer Corp., which has been the best high-tech stock performer in the past three years. Still, the game is not about owning every stock that goes up, but bringing sanity and strategy to investments. — Tim Ouellette

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Harley-Davidson's Eric Martin: Handheld users are putting more pressure on the help desk to keep up with new apps

Handheld burdens

CONTINUED FROM PAGE 1

many companies. "The notion of dealing with handhelds or remote access is a peripheral issue," said Emil Kobyleck, executive director of the Help Desk Institute in San Francisco. "Companies are overwhelmed with databases and vendor support and PCs and service. The notion of dealing with handhelds is seen as just another device. I think that could end up biting people in the end."

HELP NEEDED

Eric Martin, lead LAN/WAN engineer at Harley-Davidson, Inc. in York, Pa., which uses more than 100 JCom Corp. PalmPilot, said handheld users are putting more pressure on the help desk to keep up with new applications.

"A week doesn't pass by when I don't discover a couple of others that have acquired them," Martin said of his PalmPilot users. "They need assistance."

Martin said palmtop users call in to a central help desk number, often with requests for assistance with a remote IP connection or to get their electronic mail hooked up.

The more technical questions about handhelds are routed to those of the help desk staffers who understand how to install and use new PalmPilot applications, he said.

LACK OF COMMUNICATION

Terry Richards, information technology manager at the National Association of Realtors, said it is difficult to keep everyone on the help desk informed about new handheld applica-

tions. They are often installed by users rather than information systems and can come with connectivity problems unique to mobile users.

CHECK IT OUT

The Washington-based association, which uses PalmPilot and Hewlett-Packard Co. handhelds, is beta-testing an Internet service provider for using E-mail with the devices.

"Our challenge is making sure a new application works with our hardware and on our network," Richards said. "Sometimes a person buys in to hype, and we're forced to get it to work for them."

Corporations need to hire more help desk staffers with mobile computing expertise and train their help desk staff on issues such as: modern technology using Windows NT on notebooks, communications protocols, data syncing between PCs and handhelds and E-mail access, said Jack Gold, an analyst at Meta Group, Inc. in Stamford, Conn.

That expertise can help curb support costs. It costs up to 50% more to support a mobile user or about \$50 per help desk call, compared with \$20 to \$25 per desktop user, Gold said.

"People are not yet panicked, but they're concerned" about mobile calls flooding the help desk, Gold said.

"Now it's a laptop. In a couple of years, it will be Windows CE devices, Jupiter [notebooks] and PalmPilot connected to a [virtual private network] or modem," he said. □

More buy online with credit cards

CONTINUED FROM PAGE 6

percentage point is meaningful," said James O'Neill, chief operating officer. Even more encouraging: The time between first registration and first purchase is decreasing, he said.

Industry observers said several factors are combining to ease initial fears.

As more people buy items online without incident, they are spreading the word and then others try to make online purchases, analysts said.

Society in general is getting more accustomed to using the Internet, and sites are becoming more sophisticated at addressing shopper unease.

REDUCED MYTE

And publicity over security threats seems to have waned, said Brian Sagat, new-media director at J.Crew Group, Inc. in New York. "The real reason why people were scared and now they're not is [that] traditional media sources have stopped writing bad stories about it," he said. "Back in the height of the media coverage, we definitely got a mail [with security questions]."

One way to encourage consumers to buy is to explain security and privacy issues up front on a site, said Ron Frey, Internet business manager at Lands' End, Inc. in Dodgeville, Wis.

The company's detailed security statement "got a great response from our customers," he said. "The number of questions as far as credit-card security has declined."

With the dramatic rise in affluent investors putting banking and stock portfolios on the Web, it is clear that Internet-based businesses can win consumers' trust, argued Chris Stevens, an analyst at Aberdeen Group, Inc. in Boston.

"They're not becoming more comfortable with Internet transactions," he said. "They're becoming more confident in Internet merchants."

TRICKY METRICS

Getting a handle on how consumers react to security concerns is a tricky business.

Although 83% of Internet users said their main concern about online shopping is payment security, 95% of them said they used their credit cards online anyway, according to a poll of 500 consumers last November commissioned by the Better

Business Bureau. "You can't rely on what people say," Stevens said. "What they do online is very different from what they say."

Stevens dismisses the many surveys that demonstrate large consumer concern.

He says most people will say "yes" when asked if they are worried about online security, much like many people might say they're "worried" about crime but haven't necessarily bought more locks for their doors.

But although more Web surfers are buying products online, some in the industry said more needs to be done to broaden the appeal of Web shopping.

"You have a very elite group of transactors," said Josh Bernoff, an analyst at Forrester

IN THE CARDS

- 83%** Internet users concerned about payment security
- 59%** Internet users who have used a credit card online
- 17%** Online shoppers who ordered online but paid the bill off-line

Source: 500 Internet users

Source: CyberImages Research Report's survey, commissioned by the Better Business Bureau and conducted by Levitt Group, Inc., November 1997

Research, Inc. in Cambridge, Mass.

The online shopping industry needs "Joe AOL" to feel comfortable buying, he said, "and we're a long way from that happening." □

Ready, SET, gone?

As consumers grow more comfortable with sending credit-card data over the Internet, is there still a need for the Secure Electronic Transaction (SET) protocol that is being developed by major financial institutions?

"That's the \$64,000 question," said Judy Munnroe, vice president of Internet security at SafeBite, Inc. in Cambridge, Mass. "I don't know." The case for SET is a little diminished from a year ago, she said.

SET would add several protections to basic encryption. Consumers would use a software "wallet" with a digital certificate that proves their identity, making it harder for someone to use a stolen credit card or to claim that an item wasn't ordered after the fact.

The standard is limited by Visa International, Inc., MasterCard International, Inc. and American Express Co. along with several financial vendors, including IBM. A major marketing campaign by these performers could considerably increase the public that SET is necessary for secure Internet buying. For now, the protocol is still in pilot tests.

Onix complained that SET has been very slow to develop and will be complicated for both consumers and merchants to use.

"SET's a really complex solution that's going to require a lot from the consumer at the end of the day," said Scott Smith, an analyst at Current Analysis, Inc. in Sterling, Va.

Most executives who run World Wide Web businesses said they are watching on SET developments. If consumers want SET in order to feel more secure, the merchants said they will implement it.

"I don't think we need it," said Brian Sagat, new-media director at J.Crew in New York. But if SET would boost customer confidence, J.Crew might implement it after weighing the costs and fully returns on investment, Sagat said.

For now, most credit-card transactions use Secure Sockets Layer technology, which encrypts the credit-card number as it is sent over the Internet. Several SET pilots are under way, but Munnroe said he didn't find a single real-world Web site in the U.S. using it for non-bank activity. And merchants don't receive the actual credit-card number with a SET transaction, just an authorization. The card numbers don't reside on their servers, keeping hackers.

Merchants said SET, or something like it, will become more important as electronic commerce grows.

"We need to assess, and continue to assess, the security of transactions," said John Callaghan, an analyst at Forrester Research, Inc. in Cambridge, Mass. As more money moves over the Internet, she said, there will be a greater need for security software and systems. — Sharon Madsen

altcw

Dispatches & Page from the wiggles of the tech world

The Back Page

INTELLIGENT PARKING METER

Using built-in heat and motion detectors, this meter knows when a car enters or leaves a space. And when a car departs, the meter resets itself so the next driver can't benefit from any remaining time. It was developed by Intelligent Devices in Harleysville, Pa., and Eastern Business Software in Broomall, Pa.



News to ponder

Do you belong in Mensa, the intellectual society for people with an IQ of at least 132? Find out at the Internet testing center (www.test.com), where you can take an IQ test developed by Victor Serebriakoff, the honorary international president of Mensa. Testers who score in the top 2% are recommended for Mensa membership. The IQ test costs \$4 and is confidential.

A British health agency recently issued a warning about the dangers of buying human sperm via the Internet. Reuters reports. The

Human Fertility and Embryology Authority, which regulates sperm banks in the U.K., said there are no guarantees that the sperm will have undergone the rigorous screening that ensures it is disease-free and of high quality.

The Sync, an Internet audio/video broadcasting company (www.thesync.com), claims a spot in Internet history by making the first modern feature film available for viewing on the Web. Visitors can watch the 1994 American independent film *Walls of Sand*—all 115 minutes of it—for no charge, any time from their Web-connected home PC.

Superman's flashlight

A prototype "rader flashlight" that detects a human's presence through walls and doors could make police work safer, says researcher Gene Grenaker (left) at the Georgia Tech Research Institute in Atlanta. It detects the slight movement caused by breathing.



Inside Lines

The Foreigner Media Runway

Lastly it seems as if every time you turn on the TV, there is Bill Clinton trying to show us his softer side. First, he sang "Twinkle, Twinkle, Little Star" for Barbara Walters. Then he trooped off to Washington to argue with cranky senators. Now one of the world's richest men is hauling golf clubs for Calaway Golf Co. in Carlsbad, Calif. Please, somebody give this man some prepping routines to work on!

Top of the morning to you

IBM had some interesting techniques for getting attendees going early in the morning at its manufacturing conference last week in the Disney World resorts. On the first day, a 13-piece brass band serenaded everyone at 8 a.m. with a collection of Disney-oriented songs such as "Zip-a-doo-Do-Do." The next morning, a general session was capped off by a "business values concert" who studied the stage, devoted a Broadway piece about the business wisdom of Aristotle and issued Satchel's bars to the crowd.

Cinema good numbers

Lots of numbers are apparently interested in March Madness. ESPN's SportsZone (<http://espn.com>) says it registered 5.5 million site visits last Monday, which it claims as a single-day record for sports sites. The always sagely omniscient NCAA basketball tournament playoffs were announced the day before.

Media crisis

Search Network Communications Corp.'s Web site for Recreational Equipment, Inc. and you'll still find some press releases that say the company uses Netscape's electronic-commerce software for the www.rei.com Web site. The only problem is, REI last week said REI is using Big Blue's latest HotCommerce Pro software. "We implemented the Netscape software nearly two years ago," says Mark Hyde, senior store manager for REI. "Naturally, it's showing its age."

Certified job guarantee

For those technology workers desperate to turn themselves into Microsoft Certified Systems Engineers, Mastering, Inc. has an offer. Based on its 96.5% success rate in training people for the Microsoft certification test, the Bensenville, Ill., firm now guarantees that all students who take its prep courses will be certified.

Beard Games

First there were your 2000 stock indexes, then millennium radio programs. Now comes a computer adventure game called *Life-On-It*. The game, created by Scott Cowart and styled after circa 1980s computer games such as the *Exarcher* series, starts you off in 1998 in an office during the excitement phase of trying to prove the year 2000 problem to your boss. By the time you reach the seventh phase, you're hunkered down in your rural home, relying on your wife. A free shareware version is available at www.beardgames.com/games.htm. For the full version, send \$10 to Scott Cowart, R.R. No. 8, 1995 O'Brien Rd., Peterborough, Ontario, Canada K9J 6Y9.

Sources close to Microsoft report that Windows NT 5.0 code has grown from its original 26 million lines to 31 million lines. Word of the expanded code comes among rumors that the NT 5.0 ship date may slip from the intended fourth-quarter release until at least the first quarter next year. "We hear Microsoft is having difficulty with the Active Directory and IntelliMirror caching features in Windows NT 5.0, and they won't ship NT 5.0 without it," said Bob Sakosem, an analyst at Aberdeen Group in Boston. Microsoft declined to respond. "It's not our policy to comment on unreleased products," a company spokesman said. Fortunately, we don't have any such policies at Computerworld, so feel free to e-mail news editor Patricia Keefe at patricia.keefe@cw.com or call her at (508) 820-8183 with your quips or news tips.

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